FREIGHT TRAFFIC ISSUE

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Shippers suggest changes they think would **promote growth** of TOFC traffic . . . . . p. 71

May 31, 1965

RAILWAY AGE WEEKLY

PIGGYBACK

The million-car year is here—
but progress has its problems
p. 54

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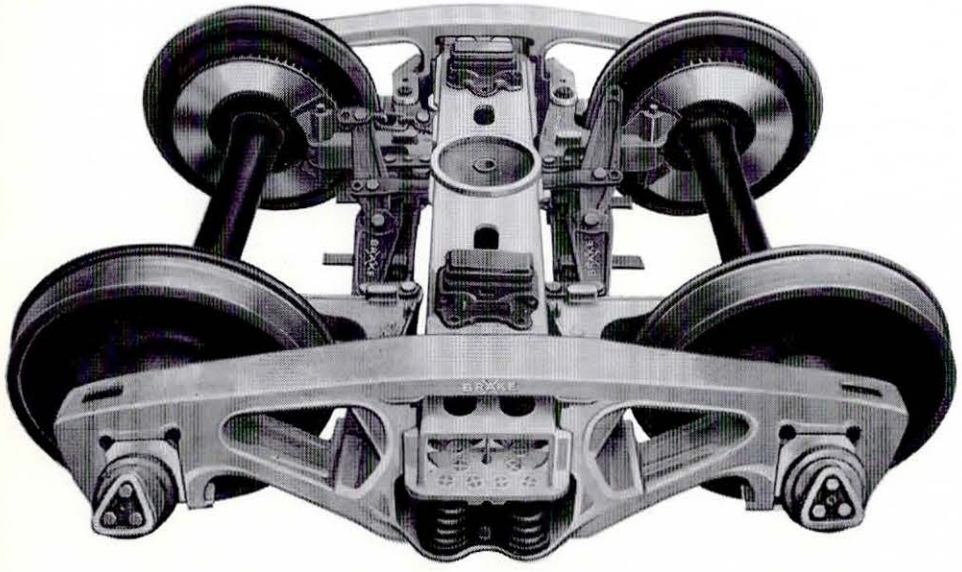

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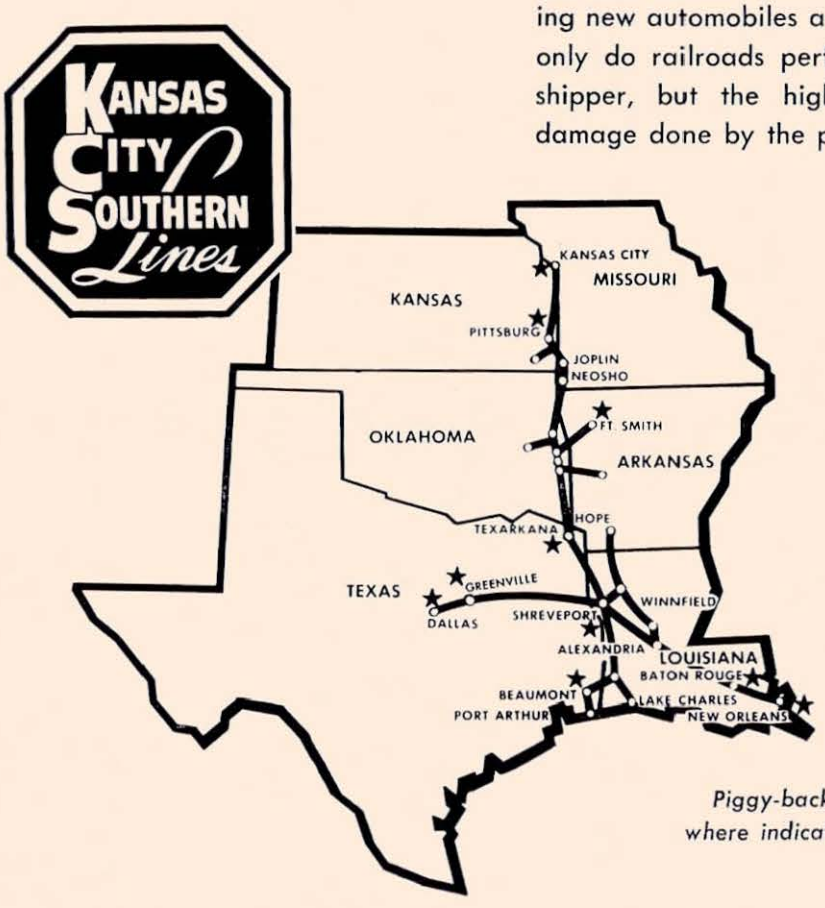

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Featuring positive locking hydraulic jacks that lock in position mechanically and automatically... it can't let you down

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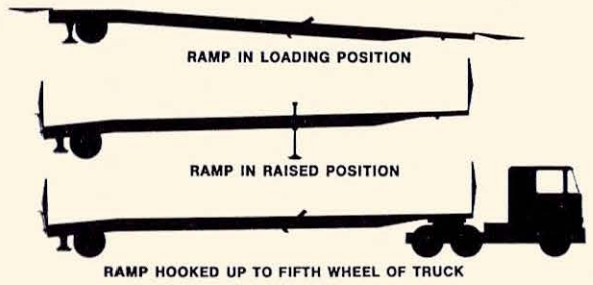

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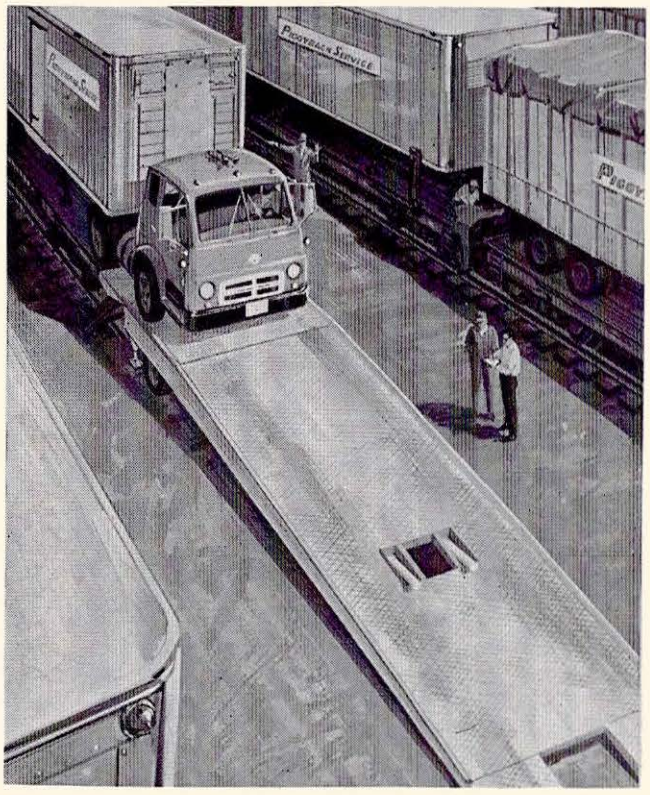

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RAILWAY AGE WEEK AT A GLANCE

May 31, 1965 • Vol. 158, No. 22

PIGGYBACK

Progress is not without its problems

In a year when piggyback carloadings will probably top one million, there are still TOFC puzzles to be solved **p.54**

No let up in sight, as TOFC still grows

Ten years' experience has brought a certain maturity to piggyback—but no loss of enthusiasm **p.62**

How shippers would promote TOFC

Broader coverage, some changes in rate and service patterns, better equipment supply, they say, would boost usage **p.71**

Burlington wins big victory in tax case

Cook County must refund $330,837 for 1957 overtaxation. Roads in county could get refunds totaling $40 million **p.11**

New yard will save millions for CN

No 'bargain-basement' buy, the Toronto facility is expected to pay off handsomely **p.74**

Frisco builds for tomorrow

The road's new headquarters building takes care of today's needs—and is designed for growth **p.74**

The Action Page—How big is the car fleet?

Railroads are constantly working to ameliorate the conditions that lead to freight-car shortages **p.130**

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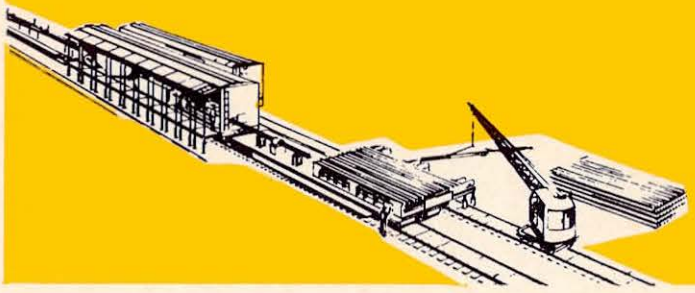

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SHORT AND SIGNIFICANT

CSS&SB moves to block Monon

Chicago South Shore & South Bend went to the ICC last week with a protest and request for a hearing on Monon's April 27 application for authority to issue up to $1,184,000 in first mortgage income bonds. The South Shore contended that such funds might be used by Monon, directly or indirectly, to acquire additional shares of its stock. CSS&SB also asked the Commission to reject the Monon application of May 11 for control and reaffirmed its support of Chesapeake & Ohio's control application.

●

IC Industries makes first acquisition

Illinois Central Industries has bought Chandeysson Electric Co. of St. Louis, manufacturers of heavy electric equipment for the railroad, steel and automotive industries. Chandeysson, whose 1964 net income before federal taxes came to $817,000, will operate as a division of IC Industries, but retain its corporate identity and personnel. The acquisition was a straight cash transaction at an undisclosed price.

●

A gold spike for GATC

General American is the winner of the 1965 Golden Spike Award, presented by the Association of Railroad Advertising Managers to the advertiser outside the railroad industry whose advertising or promotion of its own products or services contributes to a better understanding and appreciation of railroads. Silver Spike plaques were awarded to three other organizations, and two companies were given merit awards.

●

Space-age control technology developed at NYC

Fluid amplifiers—space-age control devices never before used in any privately financed application—are being tested in the transition control system of a New York Central diesel-electric locomotive following the control's development at the NYC Cleveland technical research center. In a fluid amplifier a tiny volume of air, gas or liquid actuates a powerful liquid jet so that it functions like an electrical relay. The new control technology, a hybrid of electrical and mechanical sciences, promises to find many applications in railroading because of the components' low first cost, absence of moving parts and virtually negligible maintenance requirements, A. E. Perlman, NYC president, predicted recently. Other locomotive controls and signalling applications are under active study, he said.

●

A new train jetting off the drawing boards?

United Aircraft Corporation is working on a new passenger-train concept which utilizes jet-powered locomotives. Details of the project have not been announced, but it's reported that the Atlantic Coast Line and another road have been studying the plans.

●

New York crew laws could affect traffic

New York State's excess-crew laws, recently upheld in a state court decision (RA, April 19, p. 12), might cause a drop in rail traffic moving through the state. This was the warning sounded by New York Central Senior Vice President John F. Nash, who says the laws should be repealed or changed. "It may be more reasonable and economical for the new Penn-Central company to route as much freight as possible through Pennsylvania, where crew costs are so much lower than in New York. Because of this, rail traffic through the state could decline," he said. Nash pointed out that states without excess-crew laws have rail wage costs about a third lower than New York's. He emphasized that no employees would be laid off because of repeal.

MONDAY MORNING REPORT

Fast rail service: A national problem

The Johnson Administration regards its undertaking to develop high-speed railroad passenger services as a national program—not just a local project for the Northeast Corridor which extends from Washington to Boston. This was emphasized last week by Secretary of Commerce John T. Connor, who appeared at Congressional hearings to urge enactment of proposed legislation to authorize the program.

Northeast Corridor best available laboratory

Connor's presentation was made to the Subcommittee on Transportation and Aeronautics of the House Committee on Interstate and Foreign Commerce. Throughout it, he kept the program identified by the nationwide label. Initial demonstration, however, will be in the Corridor because of relatively favorable conditions there. Such conditions include the more readily adaptable railroad facilities. The demonstrations will be on Pennsylvania and New Haven lines.

Nationwide research

Connor insisted that the results will be applicable generally. "The problems of this Corridor are fundamentally no different from those developing in other thickly tenanted metropolitan complexes which are merging in other regions of the country," he said. He also noted that all research and statistics-gathering phases of the program will be on a nationwide basis.

First test: PRR's Washington-New York line

First demonstration will be on the Pennsylvania's Washington-New York line, getting under way, hopefully, next year. Another demonstration, on the New Haven's Boston-Providence line, is also under consideration. The PRR demonstration, in which that road has expressed willingness to cooperate, would involve operation of high-speed trains consisting of new electrically propelled and individually motored cars.

Car needs: Up to 50, costing $10 million

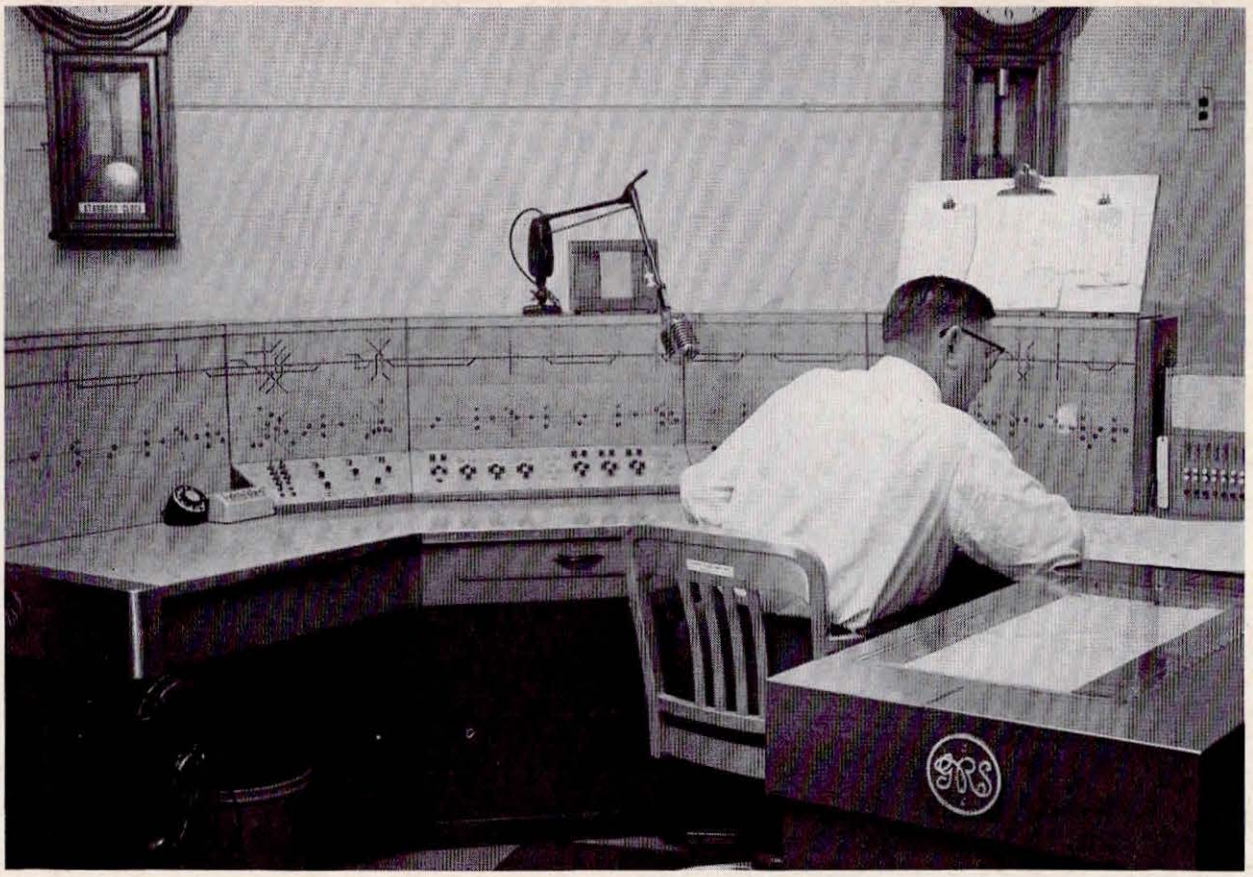
There would be 28 to 50 of these cars, purchased by the government at a total cost which (for 50) would be somewhat above $10 million. Connor noted that PRR would also make a "most significant contribution." It would spend substantial amounts for necessary adjustments of its roadbed and electrification facilities. The plan contemplates purchase of the cars by PRR at the end of the demonstration, which would be carried on for 18 months or two years. If the result were a showing of little public interest in the high-speed service the cars could be used in PRR's conventional passenger operations, Connor said.

Testing the market at 150 mph

Maximum speed of 150 mph is the objective. That is expected to permit cutting of Washington-New York running time to three hours—perhaps two and three-quarter hours. Fares, scheduling, baggage handling and other specific features of the demonstration will be worked out with PRR. "The demonstrations are intended to be tests of the market for transportation and will not involve the federal government in any commitment to furnish or subsidize intercity rail passenger service or plants and equipment of the railroads," Connor assured the committeemen.

Some far-out thinking—but first, the practical

In Connor's presentation, and the questions it inspired, there was also talk of such things as tubular passenger carriers, wheelless surface transportation of the air-suspension variety, and the car and rail ferries for long-haul transportation of private automobiles of travelers by train. Connor conceded that all these concepts and others are in the picture for study.



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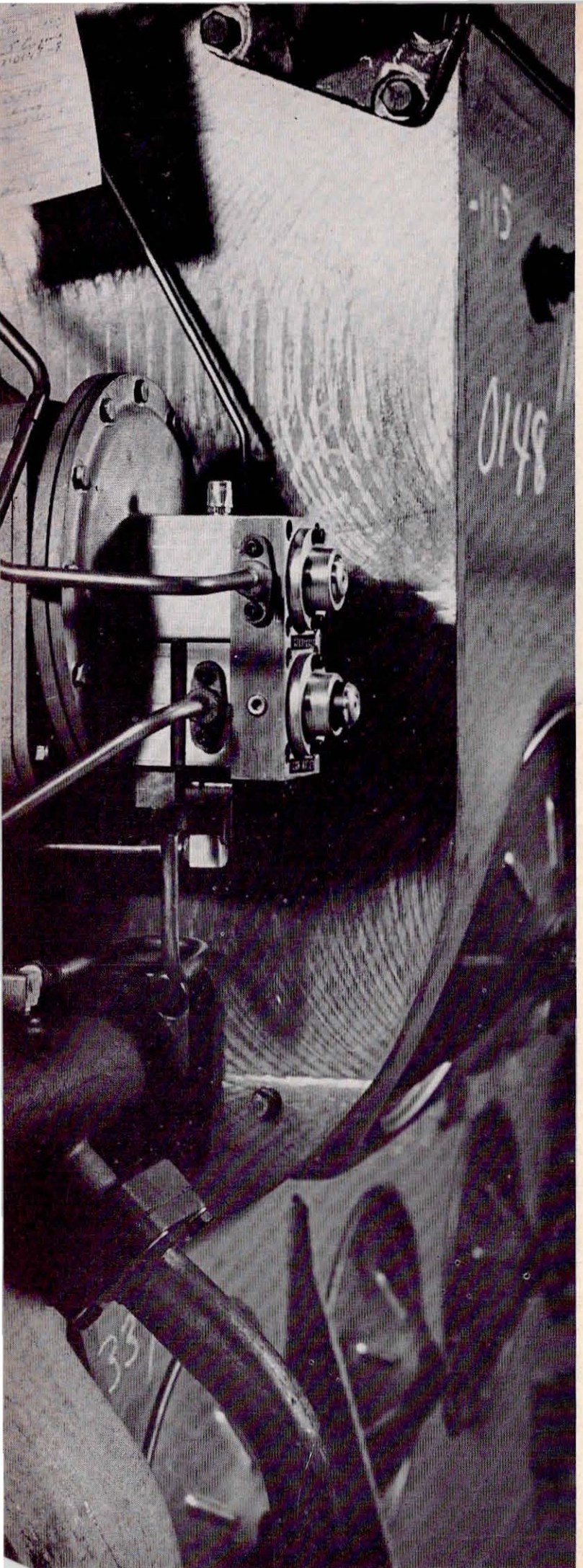
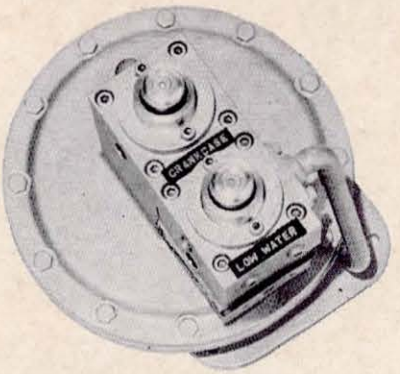


Electro-Motive Parts MAKE the Diesel Locomotive



Prevent serious engine damage with new EMD engine protector

What's it worth to spot a cracked piston or loss of engine coolant in time?

Catch this kind of trouble as soon as it starts and you'll save the cost of an engine overhaul. That's what the new EMD engine protector can do. Unlike earlier protective devices, this combination low water and crankcase pressure detector shuts the engine down immediately in case of significant pressure changes or lack of engine coolant.

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Burlington wins big victory in tax case

Illinois Supreme Court orders Cook County to refund $330,837 for 1957 overtaxation of the road's property. Ruling could lead to refunds totaling $40 million for railroads in the county. Roads elsewhere may benefit.

An impressive victory against discriminatory taxation of railroad property was scored by the Burlington before the Illinois Supreme Court May 20.

The court upset a lower court ruling (RA, Oct. 19, '64, p. 7) and ordered Cook County to refund $330,837 to the CB&Q for overtaxation of Burlington property in Cook County in 1957. The court found that the railroad's property had been taxed for 100% of its value whereas other local property was assessed and equalized at 50% of full value.

● **Other railroads benefit.** The court's ruling opened the door for tax refunds to 32 railroads in Cook County amounting to some $34 to $40 million. Burlington alone, which has Circuit Court suits pending in Cook County for the years 1958 through 1962, stands to collect tax refunds of $1.8 million.

While densely populated Cook County has long been known as the hub of the nation's rail system, railroads in all parts of the country stand to benefit—even if only indirectly—from the ruling. Carriers in 24 states are taxed for their property by systems that, in one way or another, place an unfair burden of taxation upon them. Experts feel the Illinois Supreme Court ruling may speed the rate at which other state tax officials are correcting inequities that have long resulted in railroad ad valorem taxes being an estimated $112 million too high.

● **Fraudulent is the word.** In reversing the decision of the Cook County District Court, the Illinois Supreme Court decision (delivered by Justice House) stated firmly: "Where a railroad's assessment is at full value and locally assessed property is so undervalued as to result in gross discrimination against the railroad, the assessment is constructively fraudulent."

The court was only reiterating what it had said before. Only two years before, the court had decided that railroads were entitled to a refund if they could prove that their property was assessed at substantially higher levels than other property assessments.

● **GM&O, CB&Q, and C&NW led way.** Important litigation by the GM&O, CB&Q and C&NW in 1961 and 1963 contending that discriminatory taxation existed and that tax refunds should be made resulted in a 1963 decision by the Illinois Supreme Court favorable to the railroad point of view. On that occasion the court said: "There has been discrimination against the railroad amounting to constructive fraud," and thereby touched off a flurry of adjustments made between railroads and county tax officials throughout Illinois.

Burlington, for example, says it has collected tax refunds in 48 counties and has litigation pending in four additional counties for recovery of overpayments in ad valorem taxes. The counties have been settling for cuts of about 40% in over-all railroad and property taxes. Other Illinois railroads, too, have been settling for comparable reductions and refunds, but a few carriers have not accepted the 40% formula and are holding out for the full amount of refund and reduction. The failure of Cook County tax officials to accept the formula led to the case in Circuit Court that ultimately led to the May 20 ruling from the state supreme court.

● **Big amounts at stake.** In Cook County, with $34 million accrued by the county against the possibility of having to refund taxes paid by the railroads, local tax men got a favorable ruling from Cook County Circuit Judge Thaddeus V. Adesko last October. Judge Adesko ruled against the CB&Q, finding that locally assessed property in Cook County was assessed at a level no higher than 50% of its fair cash value, that the Illinois Department of Revenue did not assess the railroad property at full value and that the objector (CB&Q) had failed to prove discrimination and constructive fraud.

● **Higher court disagrees.** Burlington went to the state supreme court where the county tax collector presented 12 exhibits aimed at showing that railroad evaluations of various railroad properties (mostly small lines) were higher than assessed valuations.

Burlington's attorney before the Illinois Supreme Court, Mark Mooney, of Holt and Kearney, questioned the admissability of the tax collector's examples, contending they weren't comparable to CB&Q's property in Cook County. Attorney Mooney introduced railroad transactions not used by the collector as "comparable" cases.

The court ruled that the burden of

WATCHING WASHINGTON WITH WALTER TAFT

TAFT

• **ALAN S. BOYD,** the new undersecretary of commerce for transportation, thinks that office should be the focal point for developing national transportation policy and recommending Congressional action when implementing legislation is required. Boyd said this in response to questions about his conception of what the job involves.

The questions came from the chairman of the Senate Commerce Committee, Senator Warren G. Magnuson (D.-Wash.), at hearings which the Committee held last week on President Johnson's nomination of Boyd for the Commerce post. The Committee cleared the nomination the same day, and the Senate confirmed it without opposition the following day—May 25. Boyd, who has been chairman of the Civil Aeronautics Board, will take over at Commerce this week. He will succeed Clarence D. Martin, Jr., an appointee of the late President Kennedy, who resigned.

THE MOST IMPORTANT THING he'll be doing at Commerce, as Boyd put it, will involve "looking at what kind of society we expect to live in in the future, and what effect transportation may have on it." He did not disagree with suggestions of Commerce-Committee members that his record seems to identify him as an innovator.

ONE OF HIS BASIC TENETS is that "one of the sure things in this life is change," Boyd said. He hastened to add that this doesn't mean he thinks of tearing any existing structure apart or "diminuting any institution." He does think, however, that "we have got to look at change as being representative of progress—if it is done intelligently."

SENATOR MAGNUSON put Boyd on record with a promise that his relations with the regulatory agencies will always be conducted with an awareness that those agencies are arms of Congress. The commitment came after Boyd had told the senator that he would maintain liaison with the regulators, and "hopefully," try to suggest what they might do in cases involving the Administration's transport policy.

THE NEW UNDERSECRETARY then went on to make it clear that he has "no concept of this job as being one of telling regulatory agencies what to do." Short of that, he thinks he can maintain satisfactory liaison with the regulators by relying on his own experience as a member of CAB and his relationships with "my friends at the ICC."

OTHER QUESTIONS suggested that Boyd might be called upon to "moderate or mediate" differences between the various modes of transport. He is perfectly able to take on that job and be guided by the National Transportation Policy declared in the regulatory acts. But he hopes the bulk of his efforts will be in the area of transport promotion rather than arbitration.

RAILROAD PASSENGER SERVICE will be an early Boyd project. He expects "immediately" to get into Commerce's research and development program in this area. While he pleaded lack of information for specific comment, he did express general agreement with the idea that government "has to make arrangements, and soon, to improve inter-urban transportation —in the Northeast particularly."

• **THE AAR'S PRICE INDEX** was up to 101.6 in April—from January's 100.7. This first-quarter rise reflected increases in all price groups comprising the index, which is based on average 1957-59 prices of fuel, material and supplies.

proving comparability for its examples rested with the collector. The court declared: "We are definitely of the opinion that these transactions (cited by the collector) do not establish comparability, and the collector has failed to support his burden of establishing the admissability of the transactions for that purpose."

• **Fair is fair.** The court also noted that the condition of public treasuries has no bearing on the law—perhaps pointing a finger at what some tax men have said for years, to the effect that Cook County has for many years ignored the state constitution's revenue article which requires real estate to be valued at a uniform rate and has assessed real estate of railroads at higher percentages of total value than other property. "We are aware of the impact of an adverse holding on the interested taxing bodies," said the court, "but our decision cannot be based upon their financial needs."

State Attorney Daniel P. Ward last week indicated he may file for a rehearing of the case by the Illinois Supreme Court. ■

Profit in 1965 may jump 4%

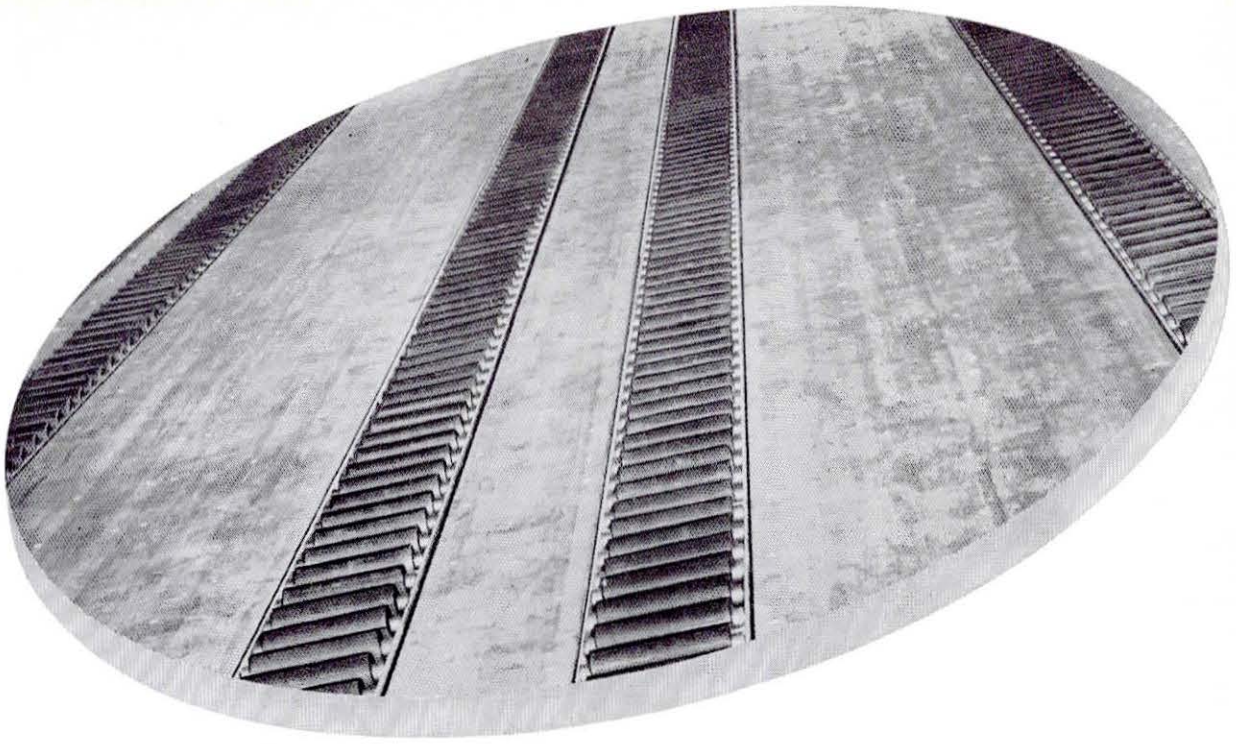
Greater traffic volume and improved operating efficiency are expected to boost Class I railroads' 1965 net income up 4% over last year.

This is the estimate of the Value Line survey, a report made by New York investment advisers. The survey showed that 68 of 83 transportation companies under continuing review will advance earnings this year over 1964's level.

"Results for individual carriers will vary widely," the report states, "with best gains likely to be posted by roads which serve industrial areas and which have not been blocked by state 'excess crew' laws from eliminating featherbed jobs."

It said wage hikes under the labor pacts negotiated last year "may prove burdensome and will be only partially offset by the personnel reductions thus far accomplished."

In its study of the railroad equipment industry it found that capacity production this year will very likely break all earnings records. The busy factory scenes reflect the high spending of railroads last year of $1.41 billion for capital equipment and improvements, and $1.47 billion for fuel, material and supplies. Total equipment outlays for 1965 should top last year's. ■



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for one type of load...

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for general cargo

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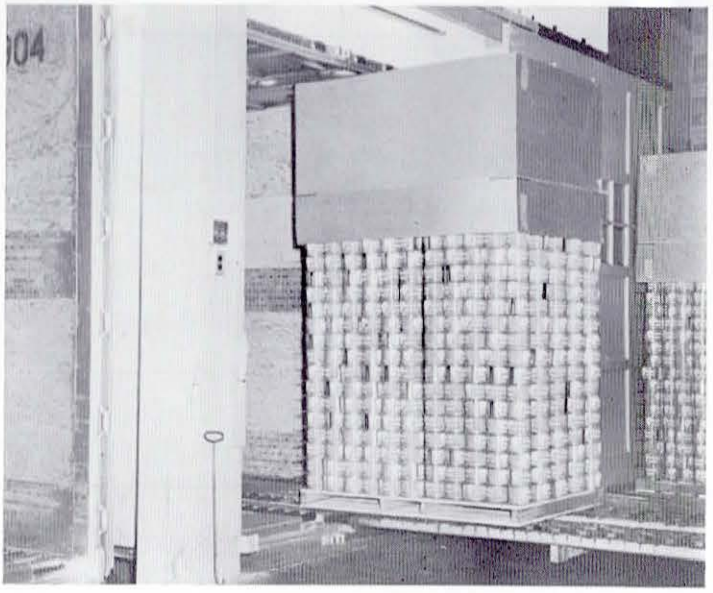
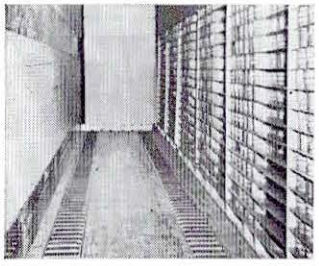


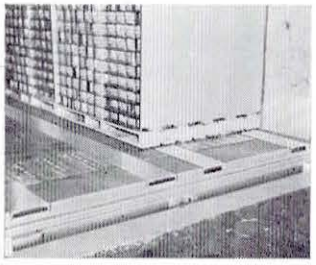
A southern can manufacturer supplies containers to food processing plants. The Seaboard Railroad wanted conveyorized trailers which could be loaded from the end of the can company's warehouse conveyors, and used for fork-truck-loaded general freight on return trips. Chief Engineer Bob Jewell and his engineering staff designed a trailer with four rows of roller conveyor sections running the entire length of the trailer. From shipping room or loading dock, pallets of cans—or anything else—can be rolled into position inside the conveyorized van.

That's not all. To haul conventionally loaded cargo the roller conveyor sections are simply flipped over and the flat metal backs of the sections form part of the smooth trailer floor.

Many shippers need equipment designed for their special purposes. The people at Great Dane Trailers will be glad to work with you in designing and building trailers to handle specific jobs. Write to us at the address below, addressing your letter to V. L. Johnson, Jr., Sales Manager, and we'll do flips for you, whatever your problem is.



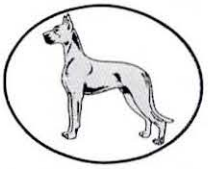
Palletized loads are easily handled with the roller conveyor sections facing up.



With the roller conveyor sections turned over, the flat metal backs make a smooth loading area.

GREAT DANE TRAILERS, INC.

SAVANNAH, GEORGIA



Quality is our product

Atlantic Coast Line
Virginia-North Carolina-South Carolina-Georgia-Florida-Alabama

CENTRALIZES
HOT BOX CONTROL
AT CTC CONSOLE

SERVOMASTER®
DATA STORAGE AND COMMAND SYSTEM

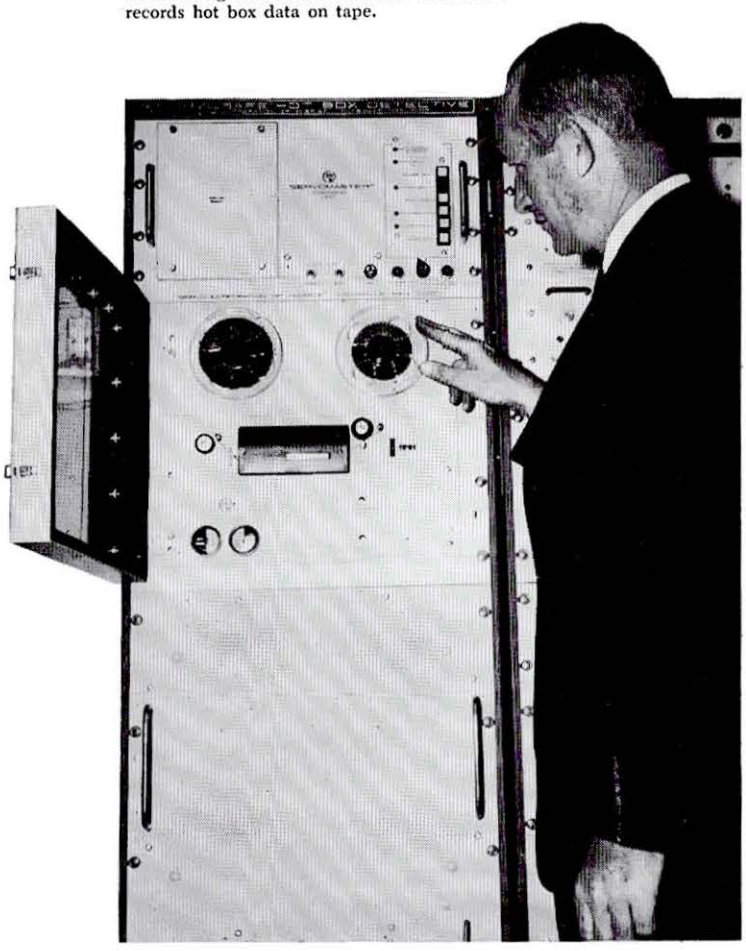
Servo salutes the ACL! Progressive ACL management has scored another important first. Protected by a strategic network of sensitive infrared SERVOSAFE® Hot Box Detectives* since early 1959, the Atlantic Coast Line is first to add the latest major breakthrough—the amazing SERVOMASTER® Data Storage and Command System.

The new Servomaster system permits the CTC dispatcher to supervise, monitor, and control a network of remote unattended Hot Box Detective* installations. An alarm lamp on the CTC console immediately alerts the dispatcher to any detected hot boxes. Trains can thus be stopped in a manner causing least disruption of traffic.

Train information is stored on magnetic *tape* at each Detective site. A *single* carrier frequency feeds in information from all detectors. Only *one* graphic chart recorder is required in the CTC dispatcher's office to display hot box data reported by the entire network.

In the words of ACL President W. Thomas Rice: "Reducing the cost of the hot box is like adding extra revenue."

Chief Engineer Communication and Signaling R. D. Liggett inspects new SERVOMASTER® Data Storage and Command unit which now records hot box data on tape.

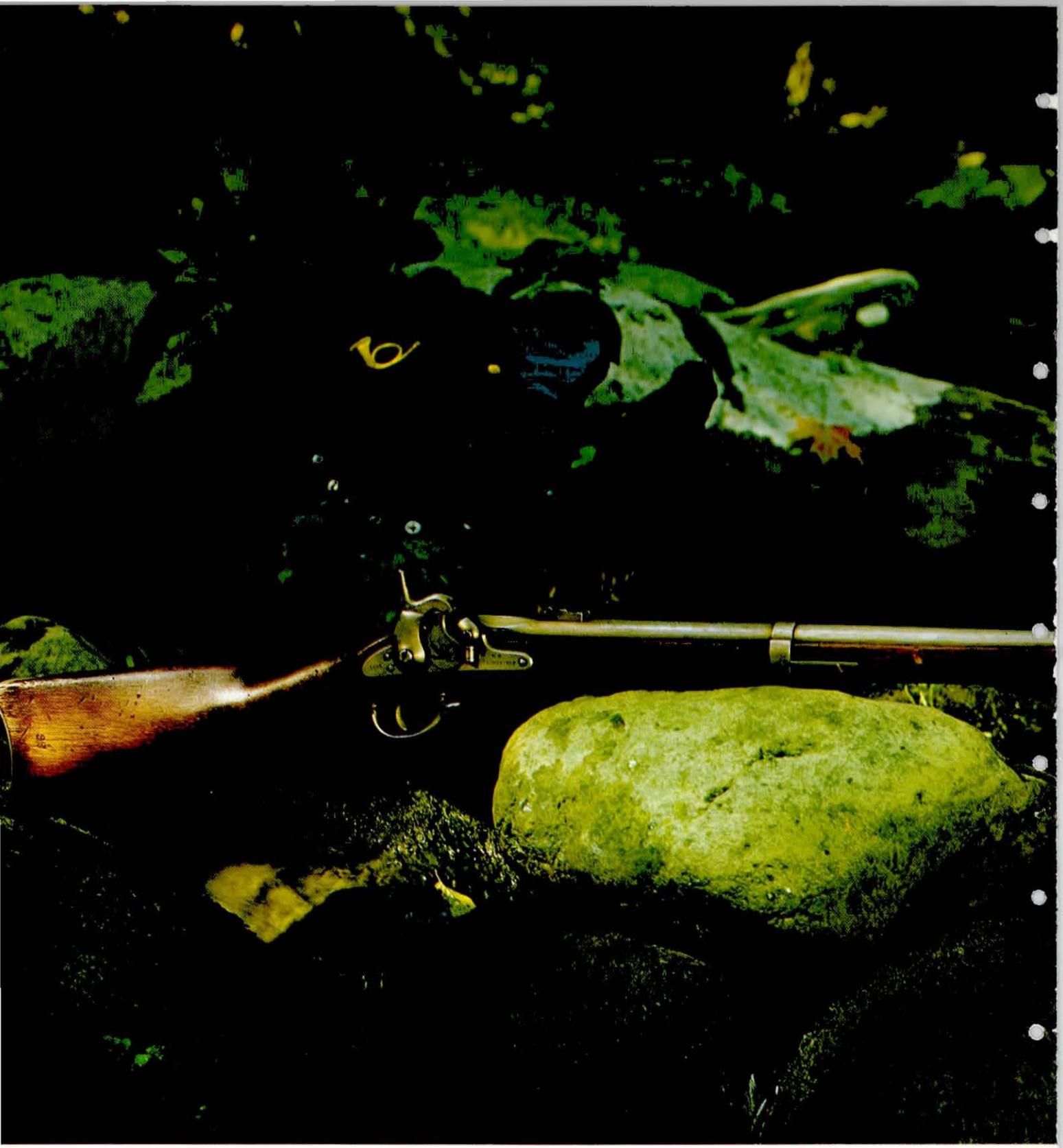


SERVO

RAILROAD PRODUCTS DIVISION **111 New South Road • Hicksville, L. I., N. Y.**

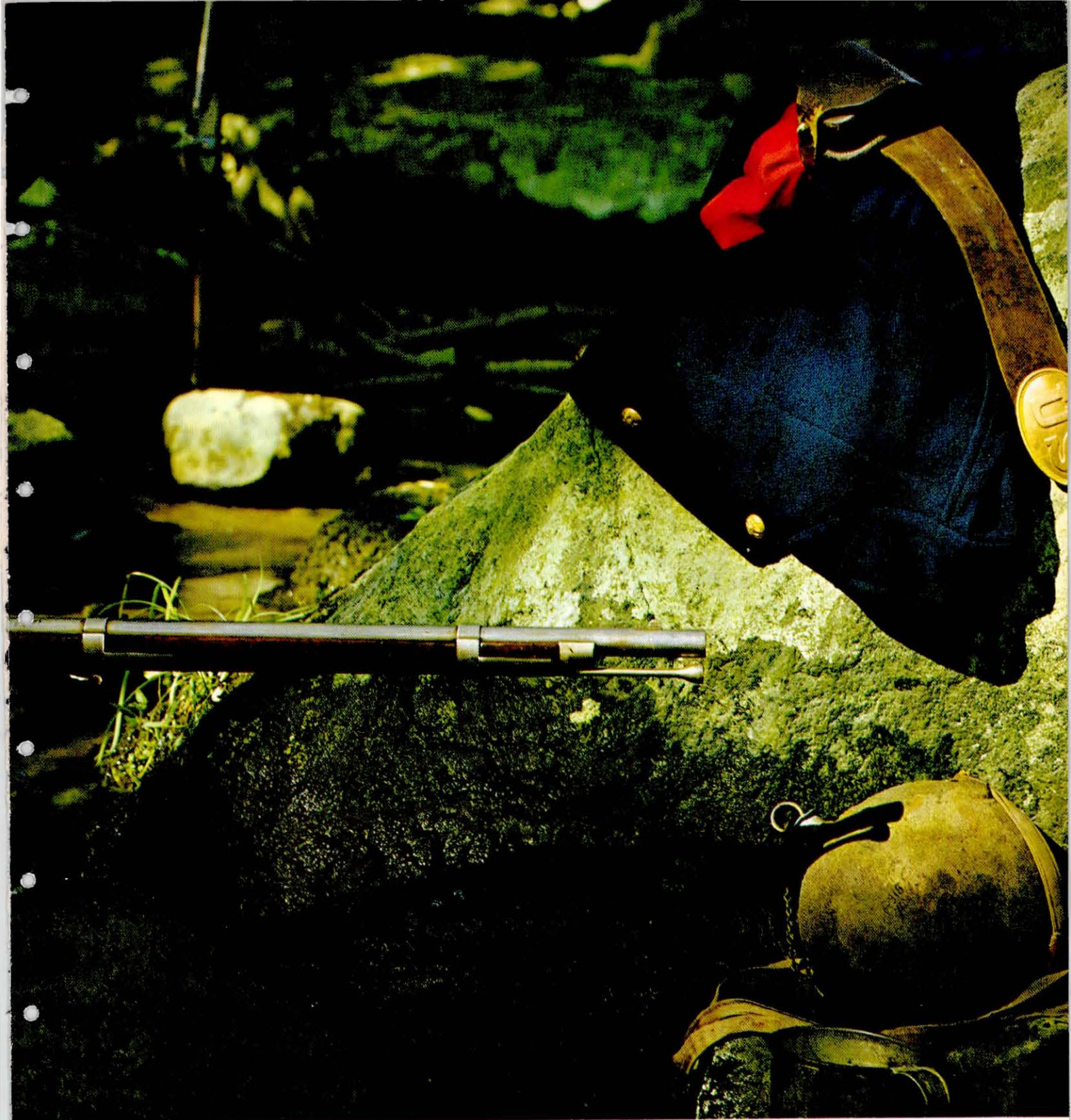
SERVO CORPORATION OF AMERICA

*Protected under one or more of the following U.S. Patent Nos.: 2,880,309; 2,963,575; 3,028,484; 3,095,171; 3,108,772; 3,108,773. Canadian Patent Nos.: 643,038; 643,091; 690,506; 690,907. Other U.S. and foreign patents pending.



OLD RELIABLE

The Model 1855 .58 caliber muzzle loading "rifle-musket" was the first reliably accurate arm issued to the American foot soldier. Union and Confederate infantrymen used it with telling effect during the Civil War. Its 40" long barrel had 3 grooves which enabled a good marksman to do precision shooting up to 200 yds.; at 500 yds. he could hit a target six feet by six feet with ease. Even by today's advanced weapon standards, the Model 1855 was a very effective and reliable weapon—simple in operation, easy to care for, and extremely durable.



Photograph by Arie de Zanger—from THE TREASURY OF THE GUN

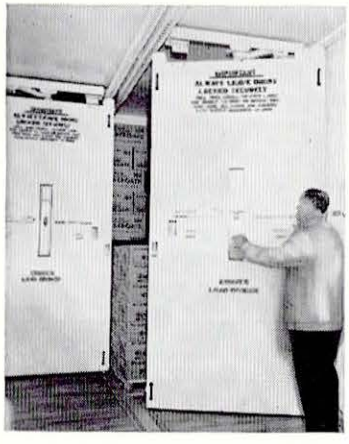
Cars don't earn revenue in the maintenance shop. Every hour a car is out of service costs someone money. That's why *reliability* is a "buy word" in a railroad man's language. And reliability is the reason why so many shippers and railroads are specifying the Keystone SHOCK CONTROL System for their cars. The extremely efficient cushioning action of Keystone SHOCK CONTROL units is now well known to both railroad men and shippers alike. Their rugged strength and reliability in actual day to day service has never been equalled—and this is the pay off when cars must be kept rolling to earn revenue. When you think of cushioning systems, think of Keystone SHOCK CONTROL—the pioneer in the field and leader in reliability. May we send you complete details on the Keystone SHOCK CONTROL System? Keystone Railway Equipment Co. 310 S. Michigan Ave., Chicago, Ill. 60604

MORE EVIDENCE that cars with Load Divider and Side Filler equipment virtually eliminate damage claims.

297,000 cases shipped without a single case of damage

The Shipper? Best Foods Division of Corn Products Company. As part of its continuing program of damage-control research, this traffic-wise company recently analysed three full months of palletized shipments from its Argo (Illinois) plant to a re-distribution warehouse at Ridgefield, N. J.

- Involved in the study were some 297,000 cases (or almost 9,000,000 pounds) of a variety of bottled, canned and cartoned goods . . . all moved exclusively in cars fitted with "Equipco Split-Bulkhead" Load Dividers and Equipco "2-D" Side Fillers.



- Results were decisive. Of the 297,000 cases shipped, not a single case was damaged!

In terms of convenience and good will, the value of such performance is obvious. But there were other benefits too. Operated by one man alone, Equipco Load Dividers glide smoothly into place . . . work as fast or faster than any other unit on the market (including one-piece designs).

Used with custom Equipco Side Filler, LD units keep pallets perfectly aligned, too . . . ready for easy lift truck pick-up. And there's no dunnage to remove, no unattached components to go astray.

Discover how Equipco Load Dividers and Side Fillers can cut costs and increase operating profit for you. Send today for full information.

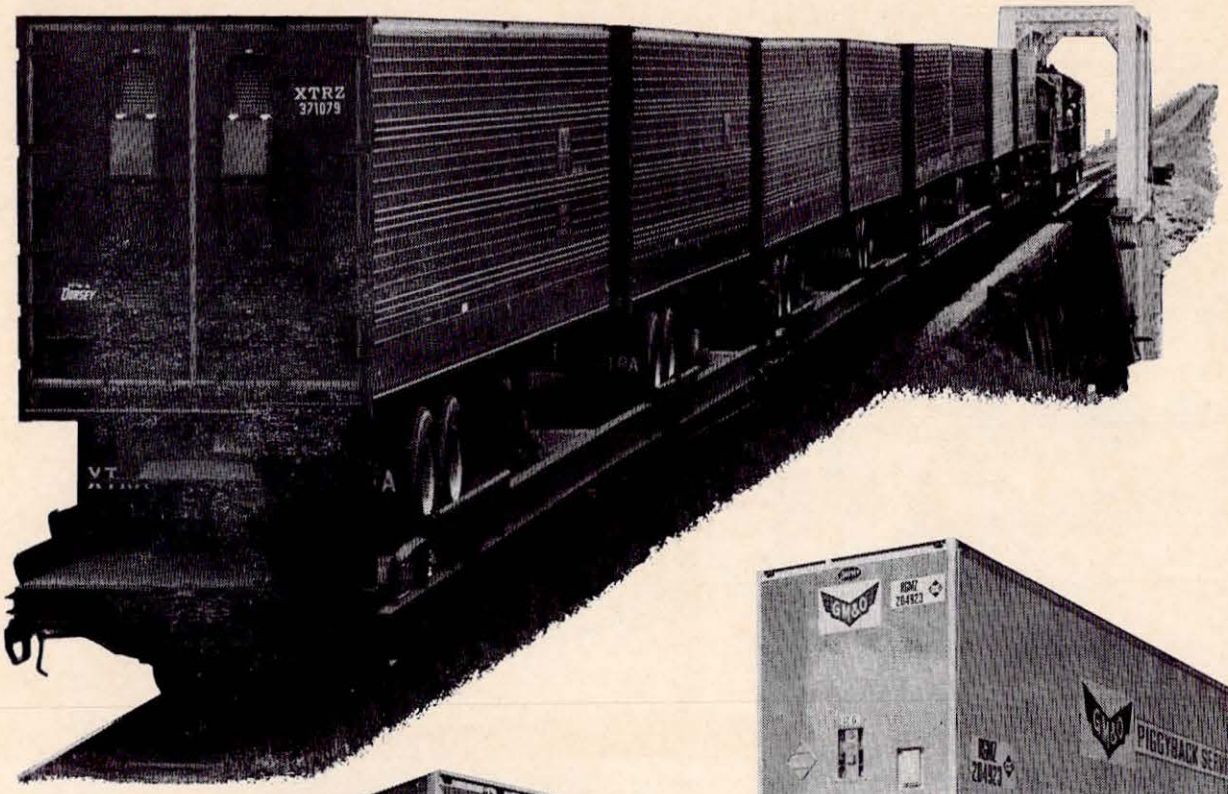
Equipco

EQUIPMENT SPECIALTIES DIVISION

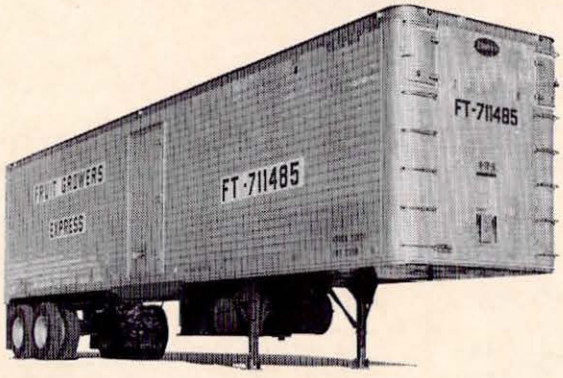
104 South Michigan Avenue • Chicago, Illinois 60603

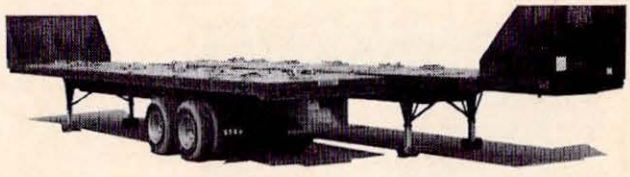
UNARCO INDUSTRIES Inc.

As more and more Dorsey Trailers ride the rails, an enviable record of reliability grows and grows



If you're interested in tough, dependable trailers for piggyback, it will pay you to call in Dorsey Special Products Division engineers. We welcome your most challenging problems, and the solutions we suggest will be based on more than fifty years of manufacturing during which Dorsey has contributed more than its share of important innovations to the trailer industry.





Write for brochure describing our plant facilities and products

DORSEY TRAILERS®

DORSEY TRAILERS
ELBA, ALABAMA

A Subsidiary of The Dorsey Corporation

DORSEY QUALITY
One Year Warranty
MATERIALS AND WORKMANSHIP

Liquefied gas car

Coil steel car

Award-Winning HYDRA-CUSHION® UNDERFRAMES

DESIGN & DEVELOPMENT AWARD

"... awarded in recognition of railway impact control and associated car design, with resulting benefits in reducing lading and rolling stock damage."

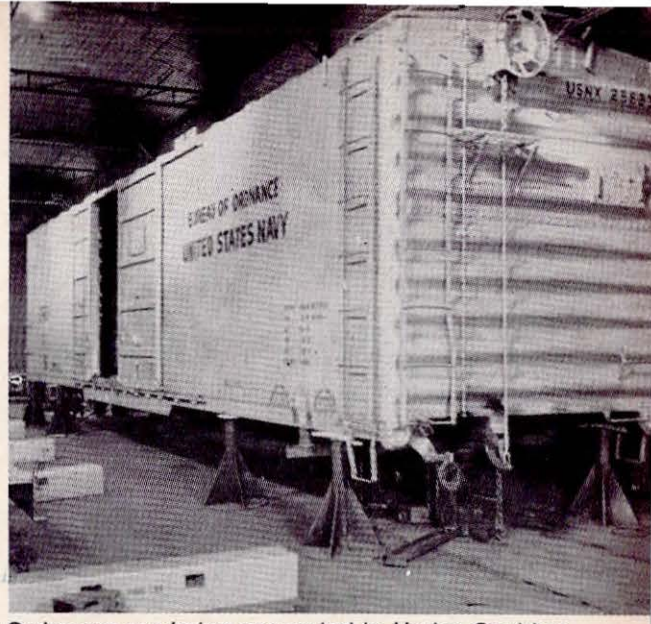
For development of Hydra-Cushion Underframes, the George R. Henderson annual medal was awarded by Franklin Institute to William K. MacCurdy, Stanford Research Institute, and William E. Thomford, Southern Pacific Company.

The cars above are just five of the many kinds of Hydra-Cushion* equipped cars now in service with 53 carriers.

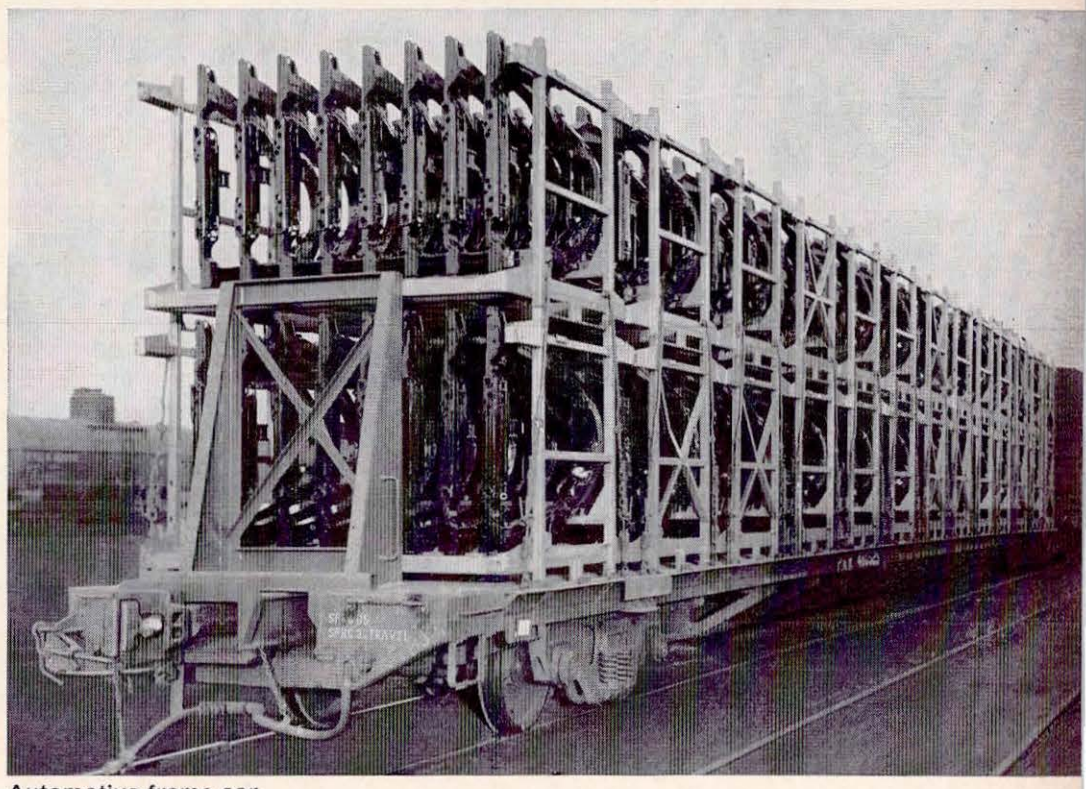
Award-winning Hydra-Cushion Underframes give railroad cars the kind of cushioning carriers and shippers must have. Because they provide maximum protection against shock for both cars *and* lading, year after year, Hydra-Cushion Underframes protect the interests of both railroads and shippers.

TM HYDRA-CUSHION® UNDERFRAMES

Hy-Cube automotive parts car



Ordnance car being converted to Hydra-Cushion

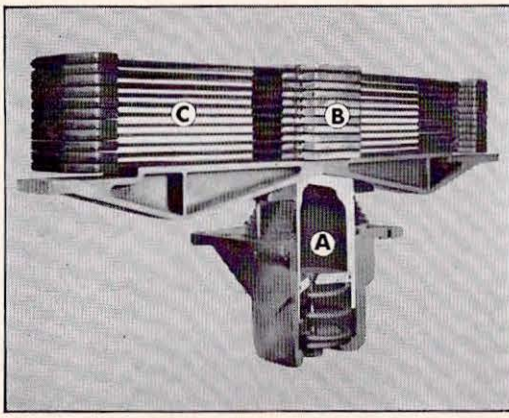


Automotive frame car

cushion cars and lading for 53 carriers!

Find out how award-winning Hydra-Cushion Underframes—the pioneer of modern cushioning devices—can protect your cars or lading. Write Hydra-Cushion Incorporated, Dept. **M-5,** 13101 Eckles Road, Plymouth, Michigan, 48170; or 332 South Michigan Avenue, Chicago, Illinois, 60604. Canadian Representative: International Equipment Company Limited, Montreal.

*Reg. T.M. of Hydra-Cushion, Inc.

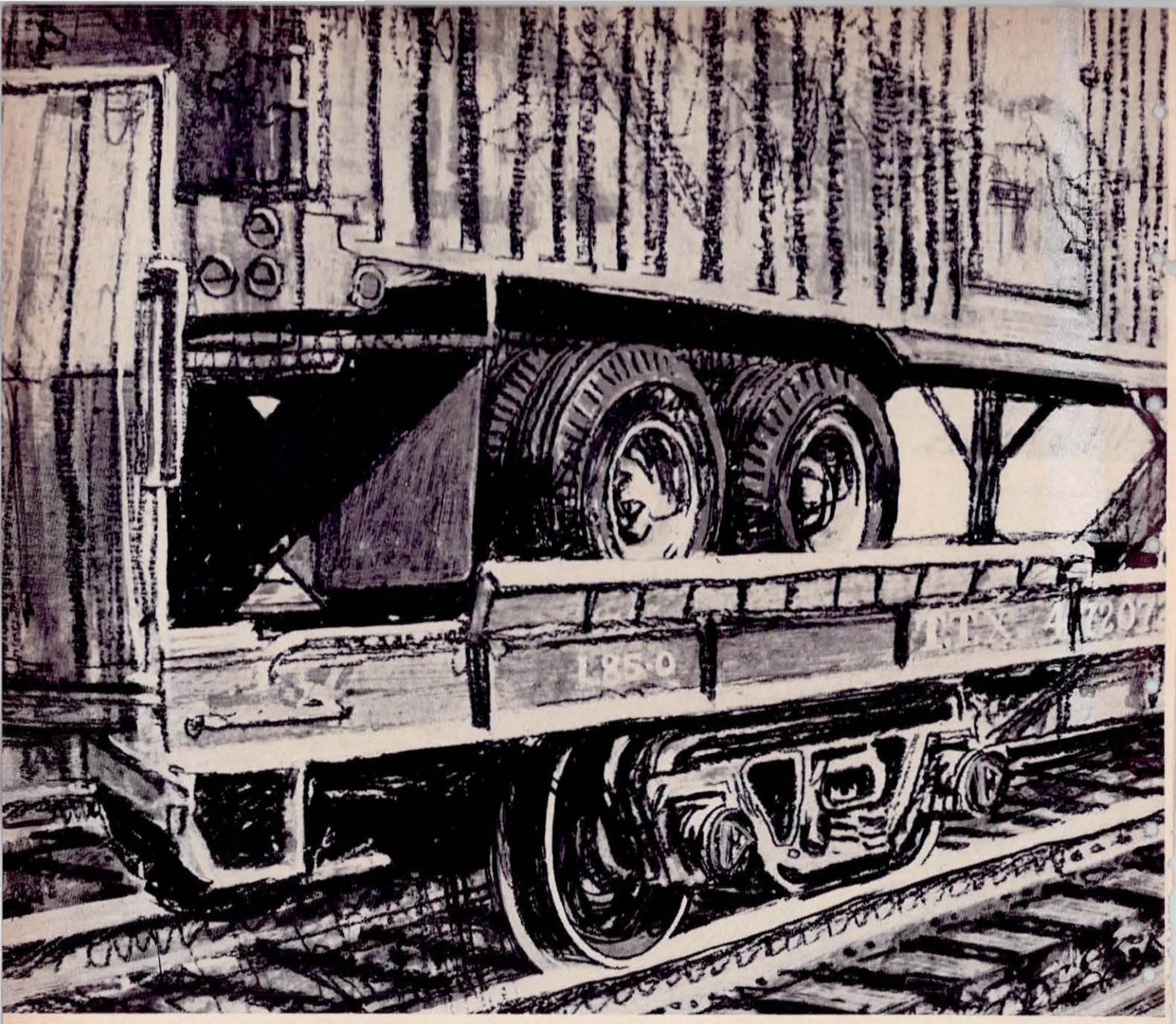


THIS COMBINATION MAKES THE BIG DIFFERENCE IN CAR CUSHIONING

The patented combination of hydraulic unit (A) and fixed and movable friction plates (B and C) in the Hydra-Cushion system multiplies the effect of oil pressure many times—obtaining maximum cushioning with low hydraulic pressures and avoiding the maintenance problems characteristic of high pressure systems. Its upright cylinder reduces possibility of oil dripping, and its short-travel reduces possibility of seal wear inherent in long-travel cylinders. Hydra-Cushion design minimizes curvature problems, coupling difficulties, and undesirable overhang.

MORE RAILROADS OWN CARS EQUIPPED WITH HYDRA-CUSHION UNDERFRAMES THAN ANY OTHER MODERN CUSHIONING DEVICE:

American Refrigerator Transit Co. • Atchison, Topeka & Santa Fe • Atlantic Coast Line • Baltimore & Ohio • Bangor & Aroostook • Canadian National • Canadian Pacific • Chesapeake & Ohio • Chicago & Eastern Illinois • Chicago, Burlington & Quincy • Chicago Freight Car Leasing • Chicago, Milwaukee, St. Paul & Pacific • Chicago, Rock Island & Pacific • Chicago, South Shore & South Bend • Clinchfield • Denver & Rio Grande Western • Detroit & Toledo Shore Line • Erie-Lackawanna • Evans Products Co. • Florida East Coast • Fruit Growers Express • Grand Trunk Western • Great Northern • Gulf, Mobile & Ohio • Linde Air Products • Louisville & Nashville • Maine Central • Missouri-Illinois • Missouri-Kansas-Texas • Missouri Pacific • New York Central • New York, Chicago & St. Louis • Norfolk & Western • North American Car • Chicago & North Western • NITX • Northern Pacific • Pacific Fruit Express • Pennsylvania • Pittsburgh & Lake Erie • Richmond, Fredericksburg & Potomac • St. Louis-San Francisco • St. Louis-Southwestern • Seaboard Airline • Soo Line • Southern • Southern Pacific • Texas & Pacific • U. S. Navy • Wabash • Western Fruit Express • Western Pacific • Green Bay & Western



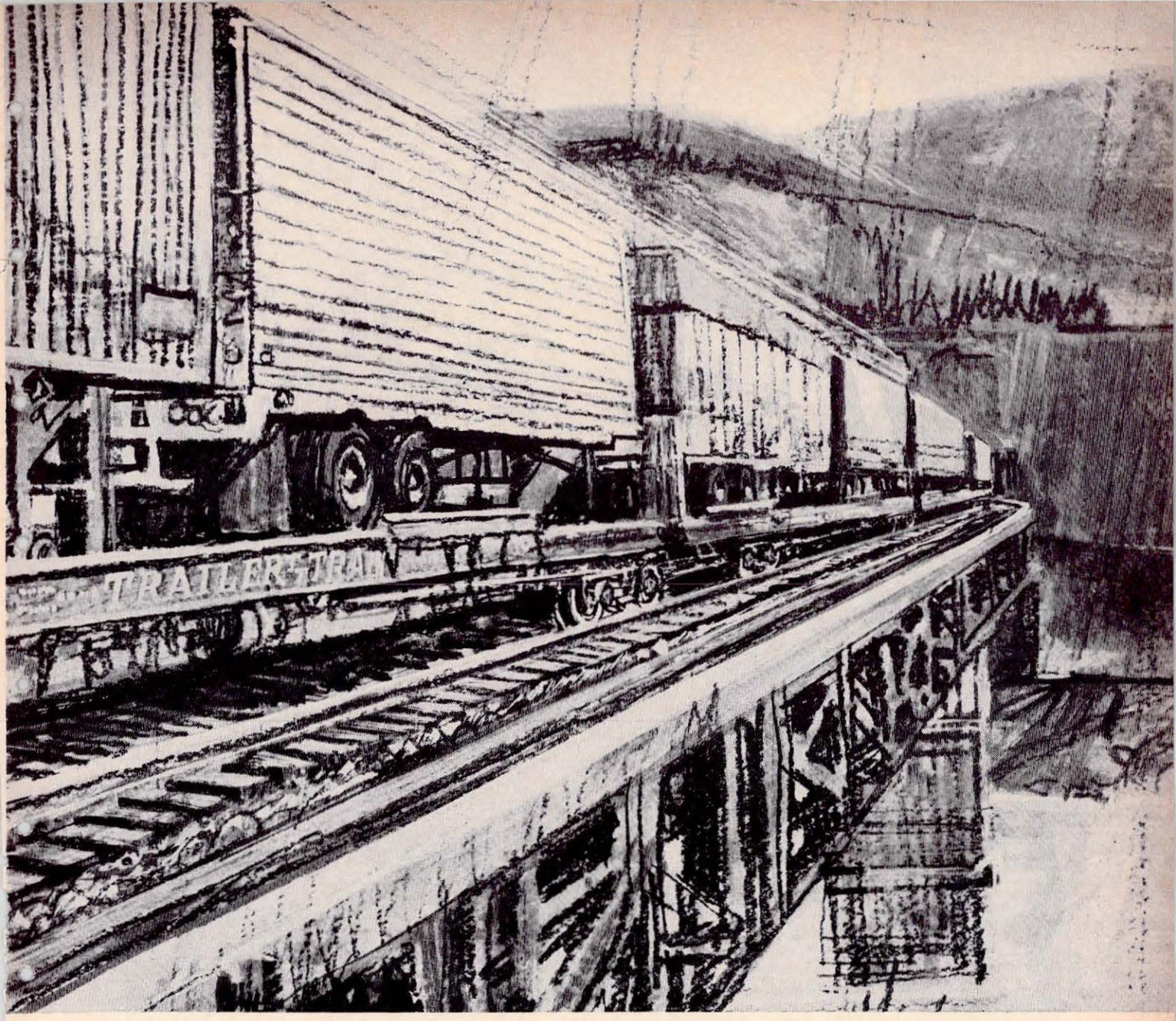
Add up the weight on each axle. Multiply Reduce hot boxes. Trailer Train has

When the Trailer Train Company started piggybacking just 9 years ago, there was little information to go on. No one had ever used this concept on a large scale before.

What would happen to a trailer flat car after such hard use? How far could wheel, axle and truck components run between repair intervals? How high would maintenance costs be? What size cars were best? 50 feet, 70 feet, or longer? Trailer Train went out on a limb and made predictions. They predicted correctly.

The railroading professionals at Trailer Train have been continually searching for improvement and they still are. Performance of equipment has exceeded expectations.

Timken® "AP" railroad bearings are on the axles of over 20,000 of Trailer Train's 24,498 cars. They helped make the predictions come true. They met 350,000-mile inspection interval requirements and were promoted to 400,000-mile intervals. Many have rolled up over 500,000 trouble-free miles and are still going strong. The hot box problem, which could never be tolerated here, has been solved. Operating and maintenance



by high speed and continuous rolling. the answer: Timken® "AP" bearings.

costs are low. Return on investment is fast.

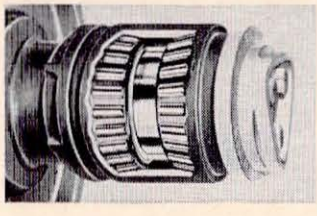
Today, over 200,000 freight cars roll on Timken tapered roller bearings in the U.S. and Canada. Trailer Train, with 38 member railroads, is the largest user of "Roller Freight" in the world.

Timken bearings are made of case-hardened steel with high nickel content for toughness. We make this steel in our own mill to control quality from start to finish.

Timken bearings' tapered design absorbs both radial and thrust loads, in any combination, for smooth performance under high loads and speeds.

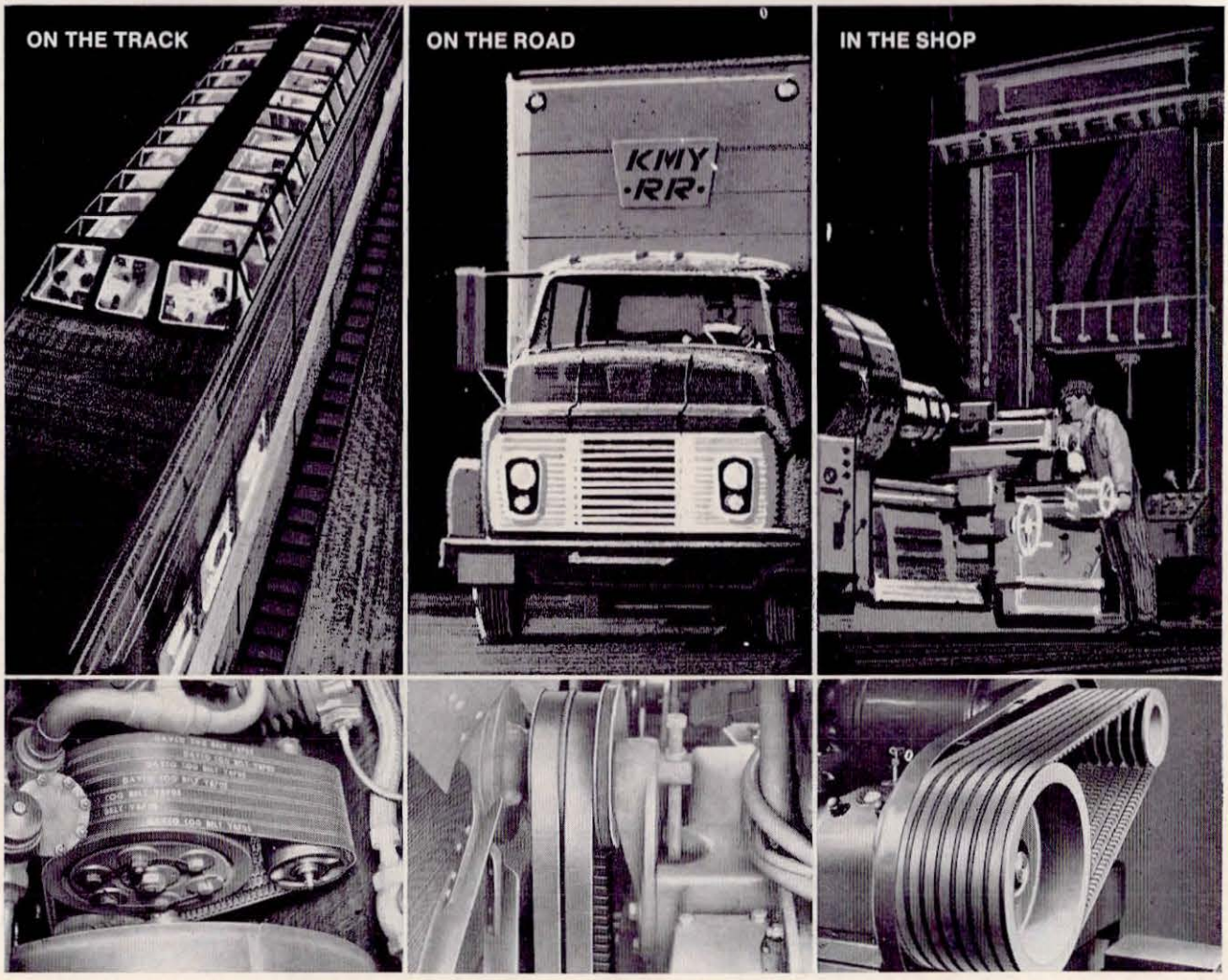
Put us to the test soon. See your Timken bearing sales engineer, or write The Timken Roller Bearing Company, Canton, Ohio. Also manufacturers of Fine Alloy Steel and Rock Bits.

QUALITY TURNS ON HEAVY DUTY



TIMKEN®
TAPERED ROLLER
BEARINGS

WHEREVER!



Wherever you use V-Belts, choose the Dayco Cog-Belt® to keep costs down!

No matter what type of V-Belt you're using now, the Dayco Cog-Belt can save you more by reducing V-Belt maintenance costs. △ The Cog-Belt is designed for rugged service on the track, on the road, in the yard and shops. It's easily installed on standard sheaves, seats perfectly, starts, stops and runs smoothly. Oil, heat and abrasive conditions are no problem. The Cog-Belt, with its die-cut raw edge sidewalls, grips sheave grooves tightly and eliminates belt slippage. All this adds up to longer belt life, better performance, lower maintenance costs! △ Your Dayco Railway field engineer is ready now to give you the full money-saving story on Dayco's complete line of V-Belts. Call or write today. △ Dayco Corporation, Rubber Products Division, Dayton, Ohio.

Dayco CORPORATION

WORLD'S LARGEST MANUFACTURER OF V-BELTS

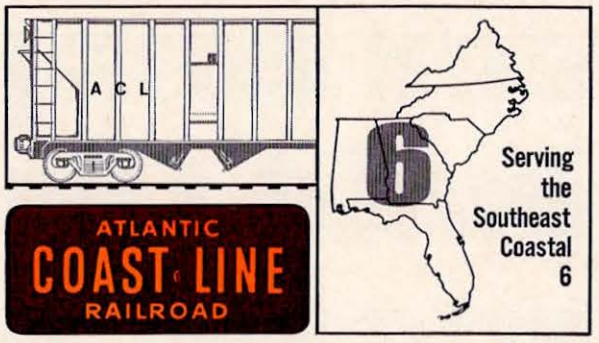
How Krafty Papermen Stay in the Chips

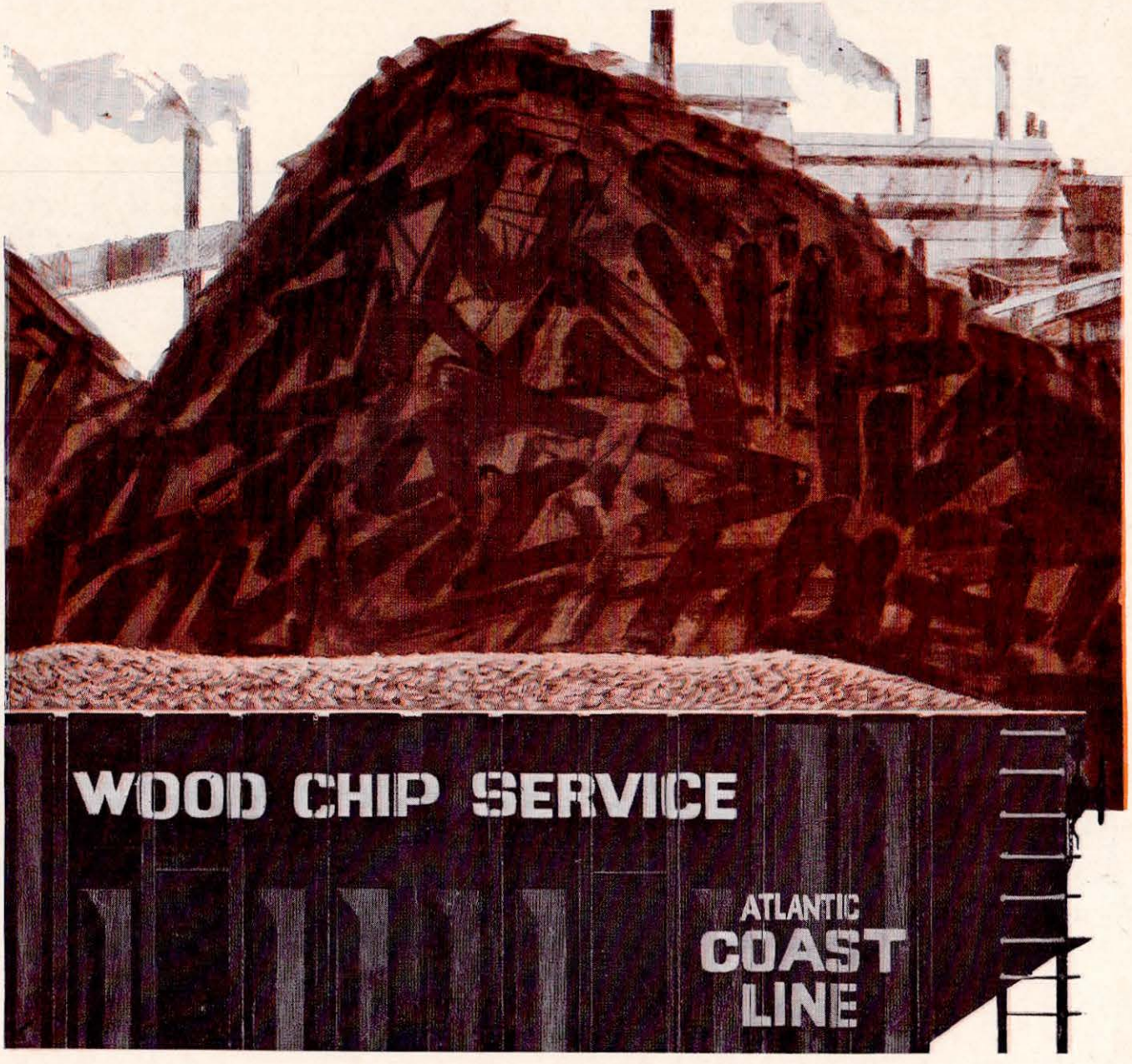
Look back ten years at the Southeast's pulp and paper industry. Then it was big business but scarcely approaching potential. Today it produces the lion's share of the country's woodpulp, kraft paper and board.

How come? Largely because of industry innovations. New ideas for more efficient procurement, processing, production. Take, for example, development of a special rail car to meet the needs of the growing trend to wood chips as a primary raw material.

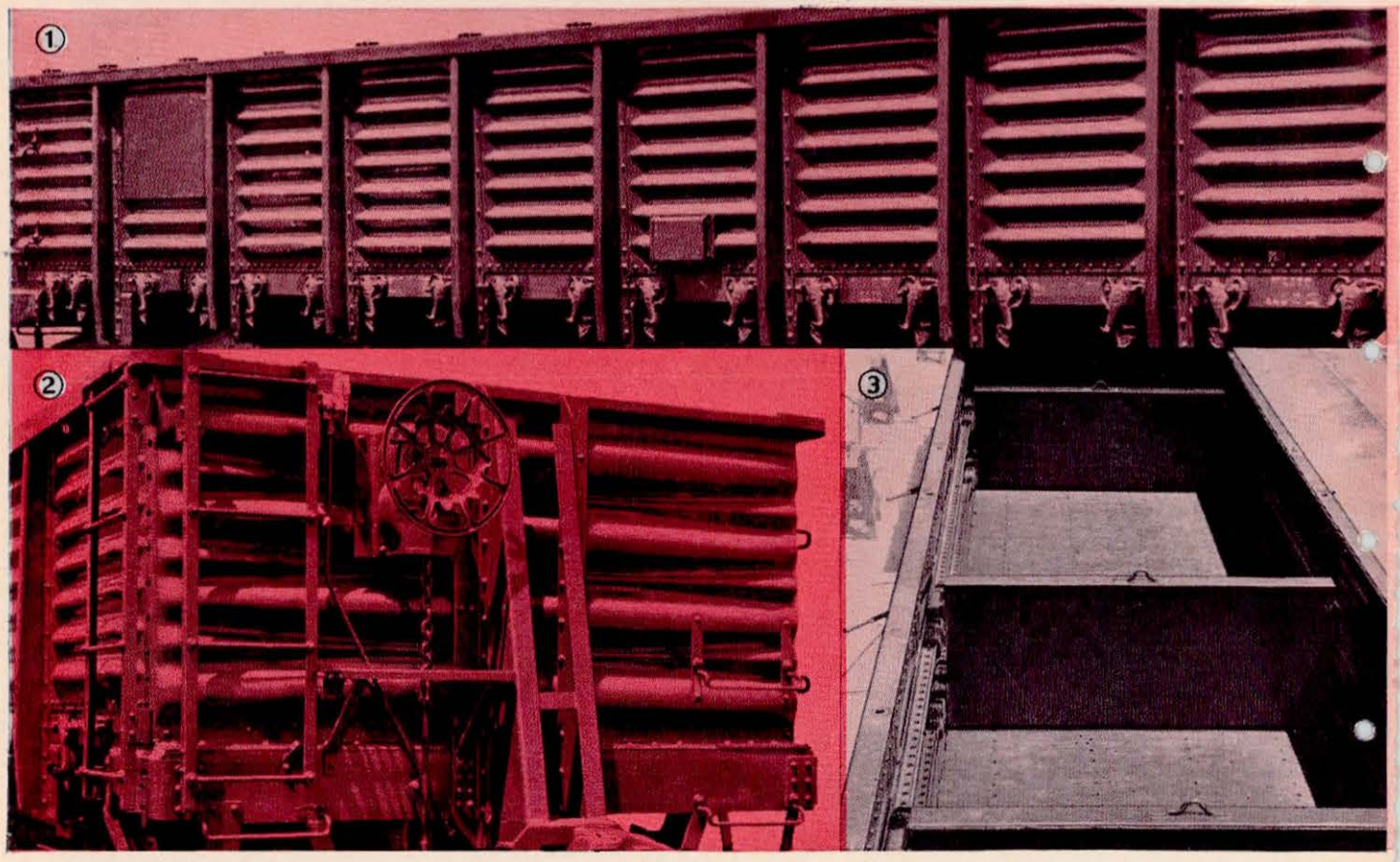
Coast Line was asked to design and build the prototype car in 1959. Working with industry representatives we did. A giant hopper car capable of hauling three times the load of conventional hoppers. Now a fleet of these cars ranges over our territory. Keeping papermen in the chips. Delivering larger loads in less time than ever before.

Helping anticipate and meet changing shipping needs is daily practice on Coast Line. It's one more way we work to serve the basic interests of our customers. "Thanks for Using Coast Line."





It takes all these Standard gondola car components to build the most rugged cars on the road.

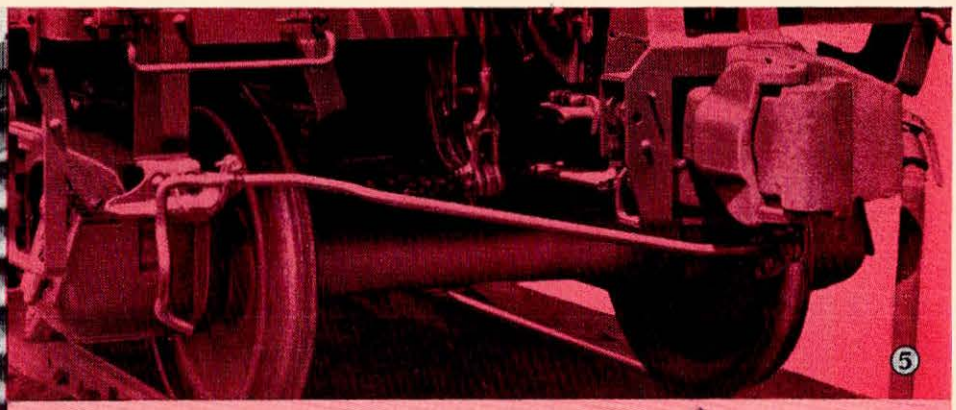


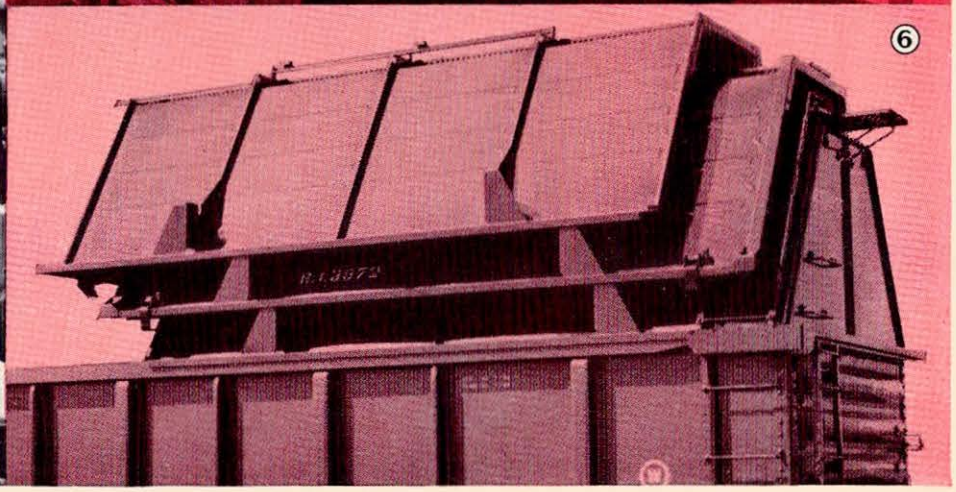
① **Corrugated gondola sides** to build super solid cars

② **Dreadnaught steel ends** for fixed and drop end construction

③ **Bulkheads** designed for greater impact resistance

④ **Drop doors** that fit so well no gaskets are needed



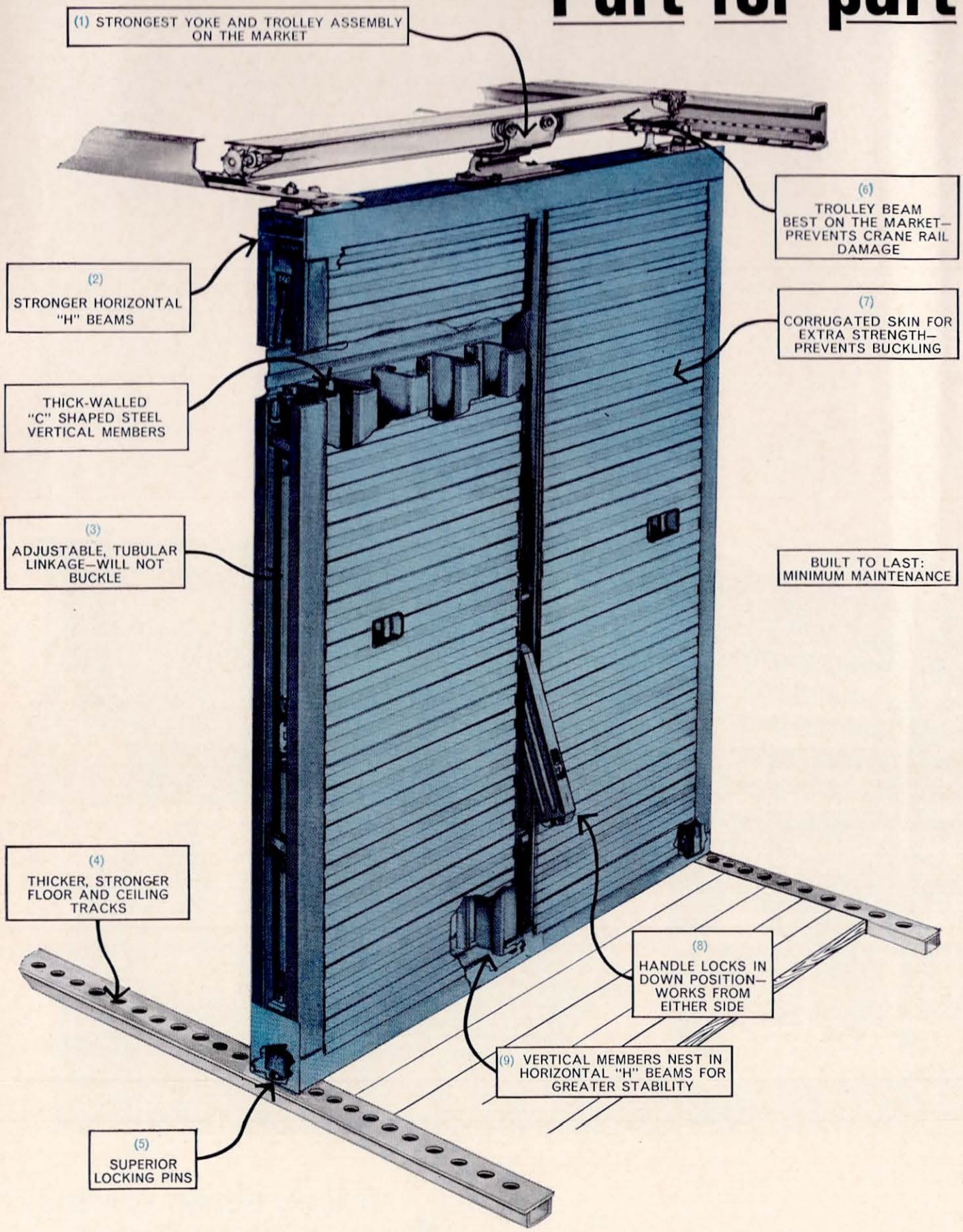


⑤ ***Coupler operating devices***
and coupler positioning device

⑥ ***Removable roof*** to give box car protection to gondola cargoes

STANDARD RAILWAY EQUIPMENT
division of STANRAY CORPORATION
Hammond, Indiana • Chicago, Illinois • New York, New York

Part for part


(1) STRONGEST YOKE AND TROLLEY ASSEMBLY ON THE MARKET
(2) STRONGER HORIZONTAL "H" BEAMS
THICK-WALLED "C" SHAPED STEEL VERTICAL MEMBERS
(3) ADJUSTABLE, TUBULAR LINKAGE—WILL NOT BUCKLE
(4) THICKER, STRONGER FLOOR AND CEILING TRACKS
(5) SUPERIOR LOCKING PINS
(6) TROLLEY BEAM BEST ON THE MARKET—PREVENTS CRANE RAIL DAMAGE
(7) CORRUGATED SKIN FOR EXTRA STRENGTH—PREVENTS BUCKLING
BUILT TO LAST: MINIMUM MAINTENANCE
(8) HANDLE LOCKS IN DOWN POSITION—WORKS FROM EITHER SIDE
(9) VERTICAL MEMBERS NEST IN HORIZONTAL "H" BEAMS FOR GREATER STABILITY

EVANS DF-B® bulkheads are stronger, built to last!

...you get a lot more bulkhead, with a lot less maintenance
Evans originated the modern one-piece bulkhead in 1959. In the years since, and over millions of car miles, only three of 20,000 in use have needed replacement; one, because the freight car itself was crushed out of shape.

In developing the DF-B Bulkhead, Evans ran well over 400 electronically instrumented impact tests, most under heavy load conditions. Evans is the only bulkhead manufacturer equipped with its own fleet of rolling laboratory freight cars for the purpose of testing and constantly improving its damage-prevention devices. We make *certain* that Evans DF-B Bulkheads are the sturdiest on the market.

Part for part, here are the reasons Evans DF-B gives you more bulkhead for your money.

1 YOKE AND TROLLEY ASSEMBLY is the strongest available, made of aircraft quality 4130 steel. Heat treated to 180,000 pounds tensile strength, every unit is Magnafluxed before, and again after, assembly to assure absolute soundness.

2 HORIZONTAL "H" BEAMS are of unusually strong (T-1 type) steel having a minimum 100,000 p.s.i. yield strength. Vertical members nest *inside* the "H" beams for maximum stability.

3 CONNECTING LINKAGE. All Evans end fittings of connecting linkage are forged and heat treated for high strength, wear resistance and long life. All linkage members are thick steel tubing, not flat strap stock which buckles easily. Evans tubular stock *will not buckle* in use. Unlike some linkages, Evans linkage is adjustable, providing positive corner-pin locking regardless of car variations.

4 FLOOR AND CEILING TRACK are thicker and stronger. Made of 3/8-inch thick steel 45,000 p.s.i. minimum yield strength. (In non-cushioned cars the steel is 1/2-inch thick.)

5 ALL FOUR LOCKING PINS (not just two) are forged. They're aircraft quality steel, heat treated to 187,000 pounds tensile strength. Magnafluxed after heat treat.

6 TROLLEY BEAM SUPPORT AND GUIDE is the strongest on the market. Evans purposely uses a single roller-and-cog-wheel at each end, not multiple-wheels which tend to cause crane rail damage.

7 CORRUGATED SKIN of extra strength prevents buckling, provides maximum protection for lading.

8 OPERATING LEVER locks in "down" position. It tends to lock itself, and stay locked, by gravity. It operates from either face of the bulkhead.

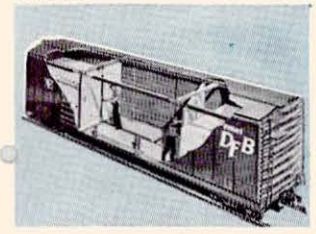
9 VERTICAL MEMBERS are thick-walled "C" shaped steel channels, not "U" shaped. Evans' exclusive turned-flange edge produces a much stronger bulkhead. Side members are made of 3/16-inch thick steel.

Let us prove how the greater strength and longer life of Evans *minimum-maintenance* DF-B Bulkheads can reduce your ultimate cost, and at the same time give you the best possible lading protection. Visit our plant. Examine our stress analyses. See an impact test!

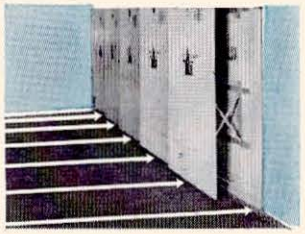
For more information, write Dept. A5, Evans Products Company, 13101 Eckles Road, Plymouth, Michigan.

EVANS PRODUCTS COMPANY
PLYMOUTH MICHIGAN

THE MOST WIDELY USED COMBINATION



EVANS DF-B bulkhead braces lading securely to prevent damage in transit.



EVANS SIDEWALL FILLERS reduce car width, preventing side movement of lading.

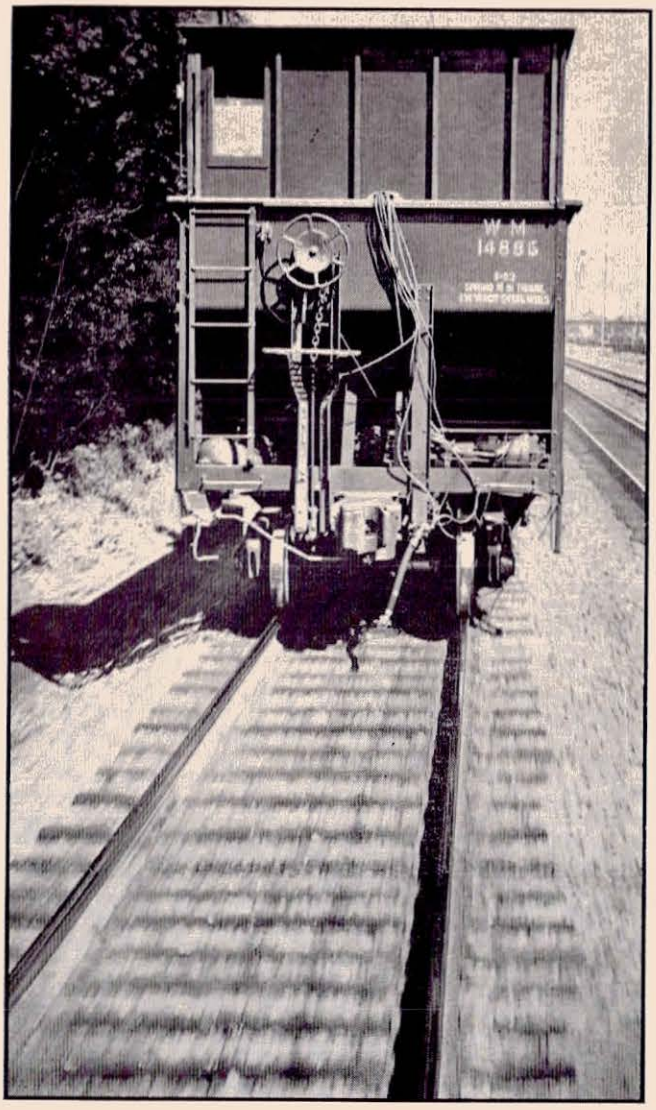
evans

RAIL MEMBER

TRANSPORTATION EQUIPMENT DIVISION

Plymouth, Mich., Canadian Rep., International Equip. Co., Montreal

744 road tests confirm the superiority of COBRA® Brake Shoes



For 33 days, freight car braking tests up to 73 mph were conducted on a 17 mile stretch of mainline track. Conducted by the Westinghouse Air Brake Division of WABCO and observed by many interested railroad officials, these tests were made to supplement the wealth of data already obtained regarding COBRA Shoes—the modern composition brake shoe.

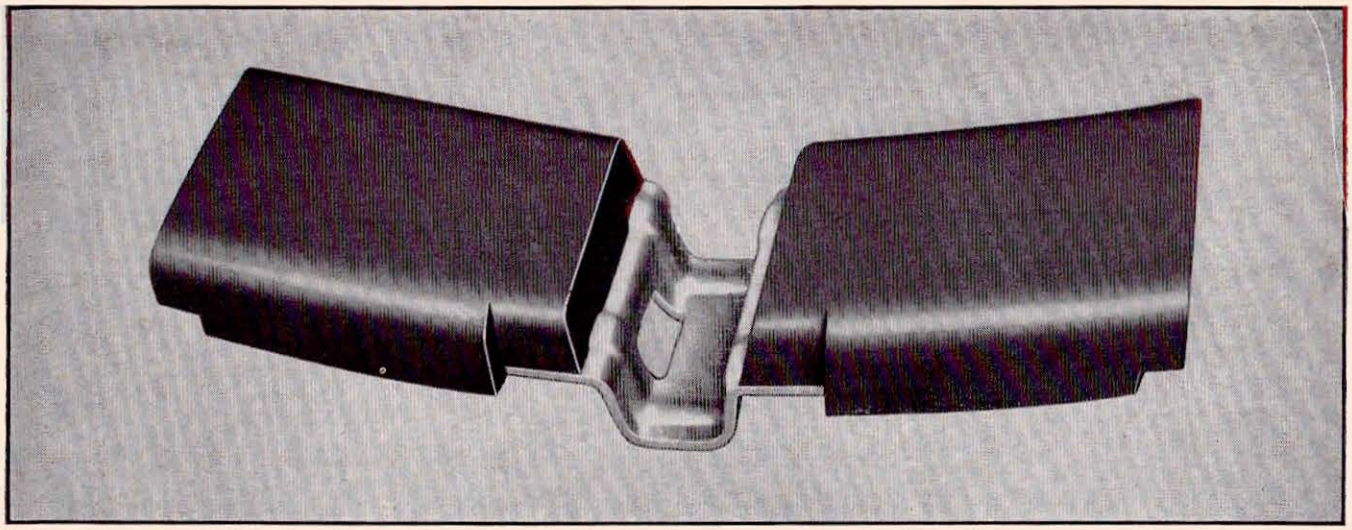
Both 50-ton and 100-ton hopper cars, empty and loaded, were tested to provide a broad base for the braking studies. All conditions were made equal on these cars except the brake shoes. Four types of brake shoe installations were tested:

1. Conventional rigging with metal shoes.
2. Conventional rigging with a low leverage ratio and COBRA Shoes.
3. Conventional rigging with a small brake cylinder and COBRA Shoes.
4. The WABCOPAC* freight brake assembly with COBRA Shoes.

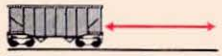
**Registered trademark of Westinghouse Air Brake Company*

TEST RESULTS:

1. SHORTER STOP DISTANCES. Stops with COBRA Shoes were as much as 2500 feet shorter at 70 mph than metal shoe braked cars. The following graph illustrates the superior performance of the COBRA Shoes with conventional rigging.

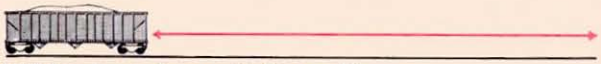


STOP DISTANCE COMPARISON USING
THE FULL SERVICE BRAKE AT 70 MPH.



Empty car with COBRA Shoes—
300 to 600 ft. shorter than metal

50-ton loaded car with COBRA Shoes—
800 ft. shorter than metal



100-ton loaded car with COBRA Shoes—
2500 ft. shorter than metal

2. IMPROVED HAND BRAKE EFFECTIVENESS. COBRA Shoes developed sufficient braking force to hold cars on grades of 4.6% to 6.7% with normal tightening of the hand brake. COBRA Shoes are more effective than metal shoes in controlling speed or stopping cars with the hand brakes.

3. PROLONGED BRAKING WITH NO WHEEL DAMAGE. Simulated grade tests show that the COBRA Shoe material will do more than its share of work during grade braking without fading and no damage to the shoes or wheels.

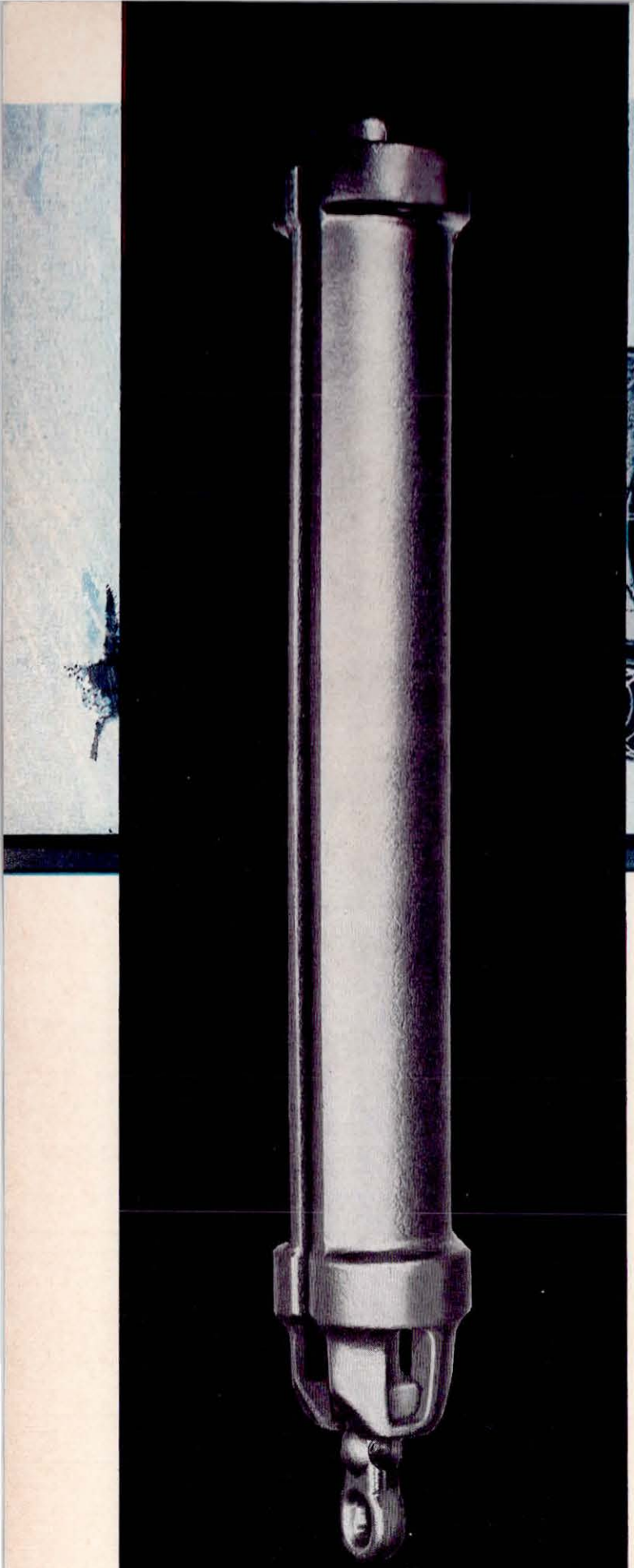
4. UNIFORM RETARDING FORCE. Tests at varied speeds and brake cylinder pressures showed COBRA Shoes have more uniform retarding force than metal shoes. Results show a 37% increase in force from 10 mph to 0 speed for COBRA Shoes in contrast with the 290% increase for metal shoes. This more uniform retarding force is important for lowering train slack shocks at low speeds as well as for giving better control of speeds on grades.

5. SMOOTHER TRAIN HANDLING. Drawbar forces were found to be moderate when mixing cars with metal and COBRA Shoes in different combinations of heavy and light braking ratios. The uniform retardation of COBRA Shoes assures smoother train handling even during the conversion period when COBRA Shoes and metal shoes are mixed in trains.

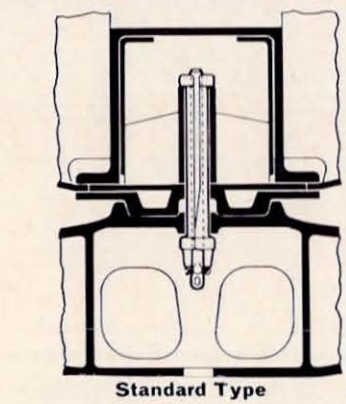
Your local WABCO representative will be glad to review the complete test report for your own evaluation. He can also show you the economies others have realized with COBRA Shoes. Call or write your WABCO district representative today.

RAILROAD FRICTION PRODUCTS CORPORATION
Wilmerding, Pennsylvania

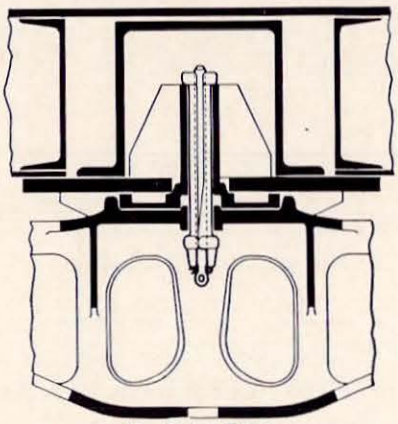
The COBRA Shoe . . . a product of the
combined research facilities of . . .
WESTINGHOUSE AIR BRAKE COMPANY
Specialists in Braking
JOHNS-MANVILLE CORPORATION
Specialists in Friction Materials



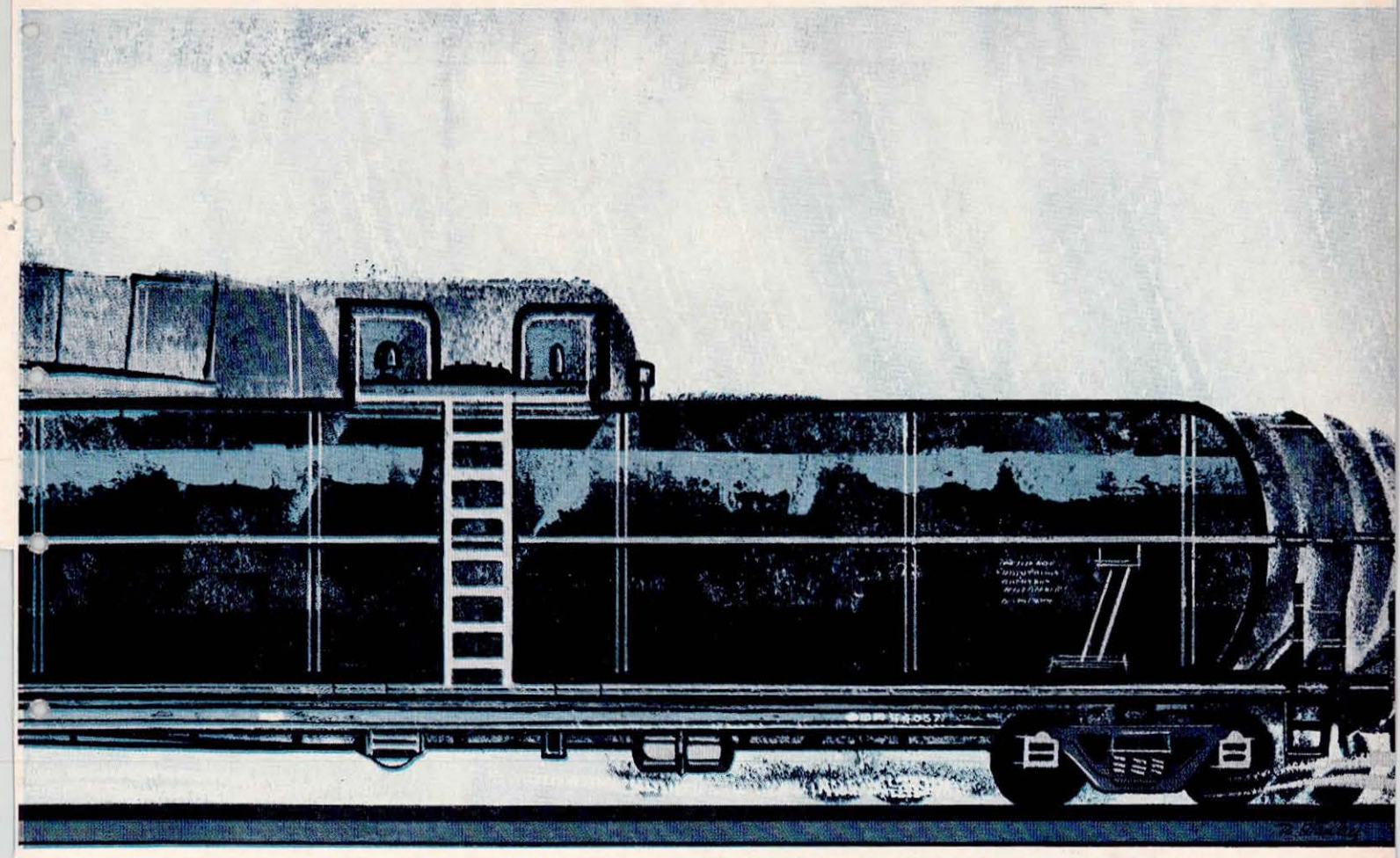
Installation can be made to bolsters having openings to accommodate a pin with a 2" diameter and a maximum grip of 12½". The limited vertical clearance of ⅜" in this new pin installation prevents center plates from disengaging during heavy impact.



Standard Type



Hy-Cube Type



Exclusive MINER Safety Locking Pin Helps Prevent Car Telescoping Or Overturning

The Miner Class L-23 Safety Locking Pin is specifically designed to lock the trucks to the car, which is known to prevent telescoping of cars in the event of collision. Should derailment occur the lower center of gravity of the car with locked trucks greatly lessens the danger of overturning.

The three-piece locking pin can be applied from underneath the car, which is a desirable feature, as no part of the car above the pin or car contents is disturbed should it become necessary to remove the locking device and the trucks.

Many railroads have equipped box-express and express-refrigerator cars (which operate in the front end of passenger trains) with our safety locking pins in accordance with A.A.R. passenger car requirements. Numerous installations have also been made on tank cars. If the car is derailed for some reason, the locking pin would greatly improve the chances of the car body remaining on the trucks, thereby reducing potential damage to the tank bottom or attachments such as bottom outlets or brake equipment. Write for Technical Bulletin L-23, or ask the Miner man for a copy.

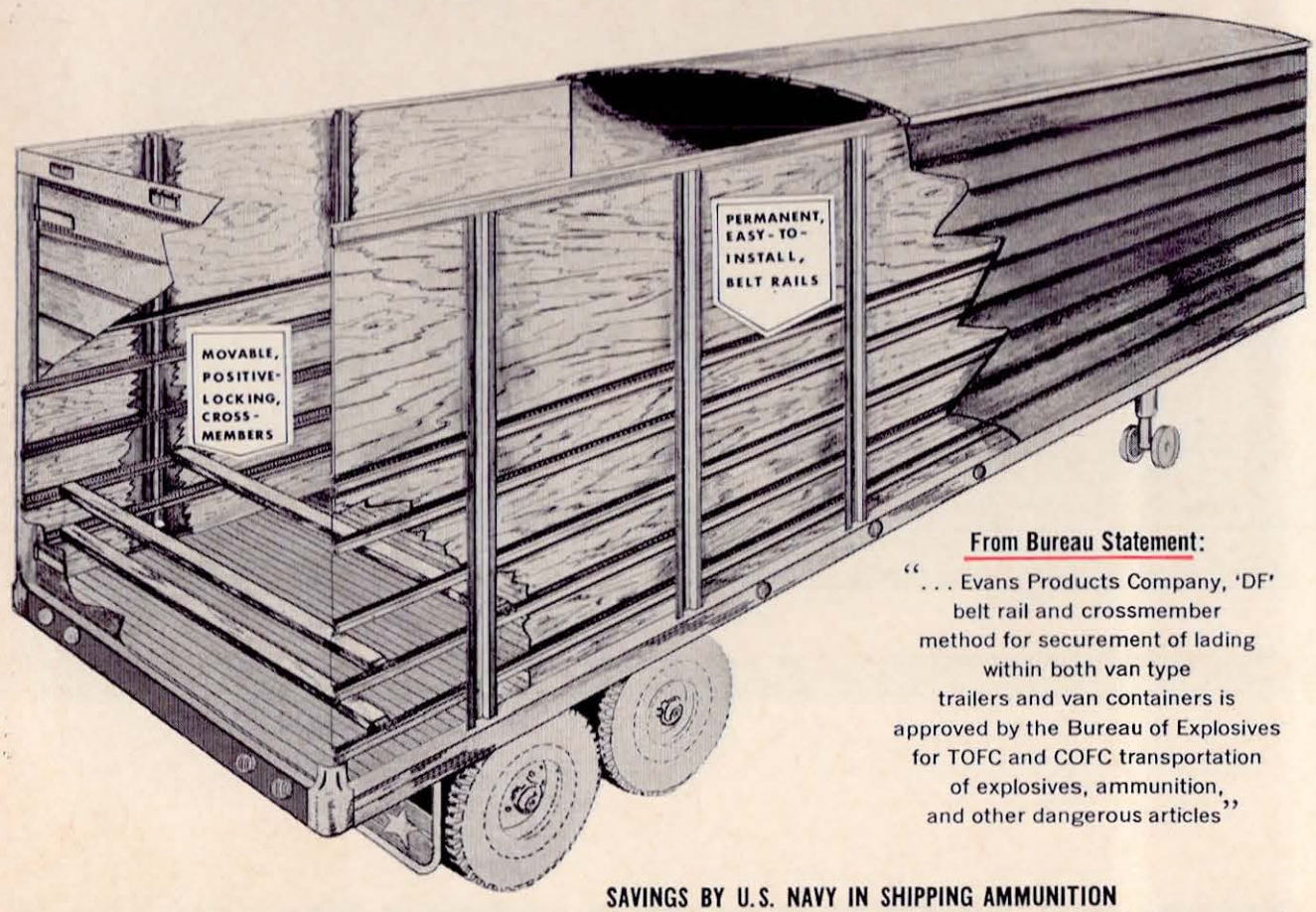
W. H. MINER, INC., CHICAGO

Office of International Operations: 425—13th St. N.W., Washington, D.C. 20004, U.S.A.

BUREAU OF EXPLOSIVES, AAR, AND U. S. NAVY, U. S. ARMY

APPROVE *EVANS TRUCK DF® EQUIPMENT*

FOR AMMUNITION AND EXPLOSIVES

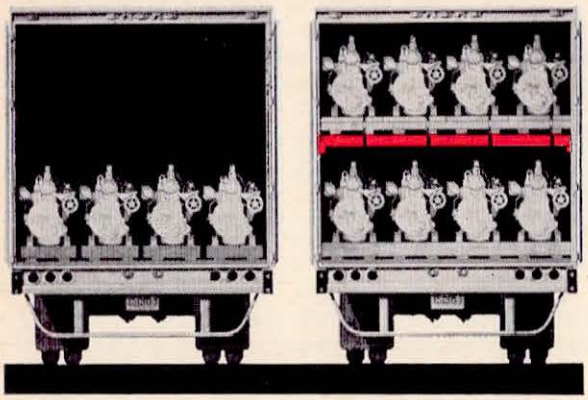


From Bureau Statement:

"... Evans Products Company, 'DF' belt rail and crossmember method for securement of lading within both van type trailers and van containers is approved by the Bureau of Explosives for TOFC and COFC transportation of explosives, ammunition, and other dangerous articles"

AVAILABLE ON REQUEST

- Complete Bureau of Explosives statement.
- Sketch of suggested installation of DF Equipment as approved by Bureau for shipping explosives, ammunition and other dangerous materials.
- List of leading truck carriers who are using Evans Truck DF Equipment for a variety of lading.



NOT CONFINED TO AMMUNITION . . . look what it is doing for other lading. See how double-decking increases number of units in load. Shown above is a typical before and after shipment via Interstate System, which has over 350 Evans DF equipped trailers. These have saved shippers hundreds of dollars.

SAVINGS BY U.S. NAVY IN SHIPPING AMMUNITION

Using Evans DF equipped trucks, the U.S. Navy saved an estimated $50,000 in dunnage and labor costs in recent shipments of ammunition and explosives. Details of U.S. Navy shipments, and of recent tests by U.S. Army, on request.

USED BY LEADING CARRIERS

For years, Evans Truck DF Equipment has been used to ship safely all types of commodities, both piggy-back and over-the-highway. It has been installed on more than 4500 vehicles in 97 different fleets at nominal cost.

- It permits maximum use of cubic capacity.
- It often permits double-decking the payload.
- It protects doorways from lading shift.
- It saves wear and tear on truck floors and walls.
- It gives greater load stability.
- It prevents damage, eliminates need for costly dunnage.

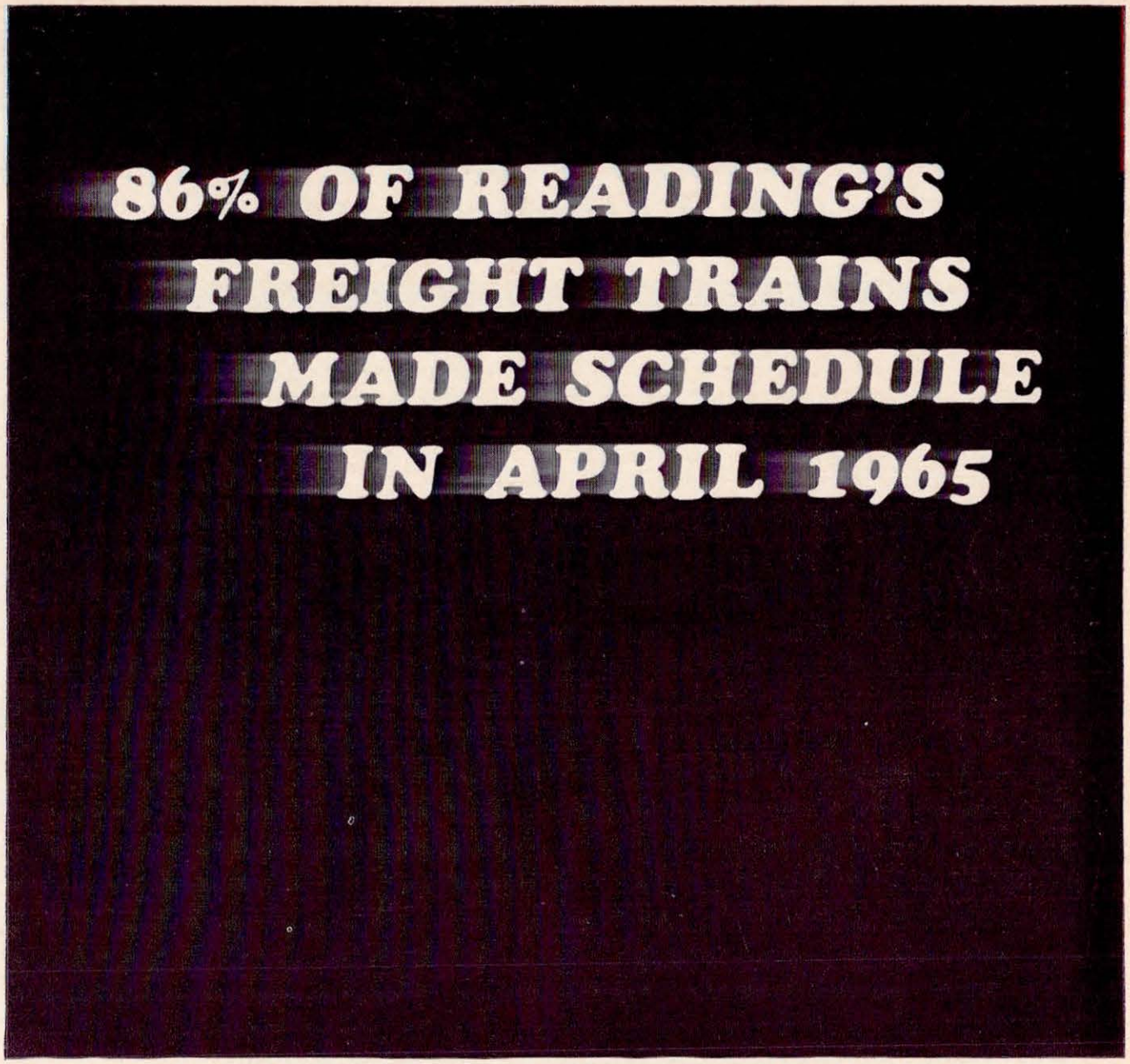
Write for information about inexpensive, lightweight, easy to install Evans Truck DF Equipment. Evans Products Company, Department A52, Plymouth, Michigan 48170.

evans

TRANSPORTATION EQUIPMENT DIVISION

Plymouth, Michigan; Canadian Rep., International Equip. Co., Montreal

EVANS PRODUCTS COMPANY PLYMOUTH, MICHIGAN



(How Many Railroads Can Make a Similar Claim?)

In just 16 months, On-Time-Performance of Reading freight trains jumped from 50% to 86%.

We didn't reduce service to do this, either.

In fact, we operated 192 *more* trains.

We even increased our export tonnage handled through Port Richmond. Up 278.3% over our 1960 tonnage!

E

And, as a result, we were awarded the 1965 Presidential E for railroad excellence in promoting American products in export.

Why not take advantage of a good thing? Ship by the *growing* Reading—where On-Time-Delivery is a No. 1 concern.

The statistics prove that a lot of people are doing it.

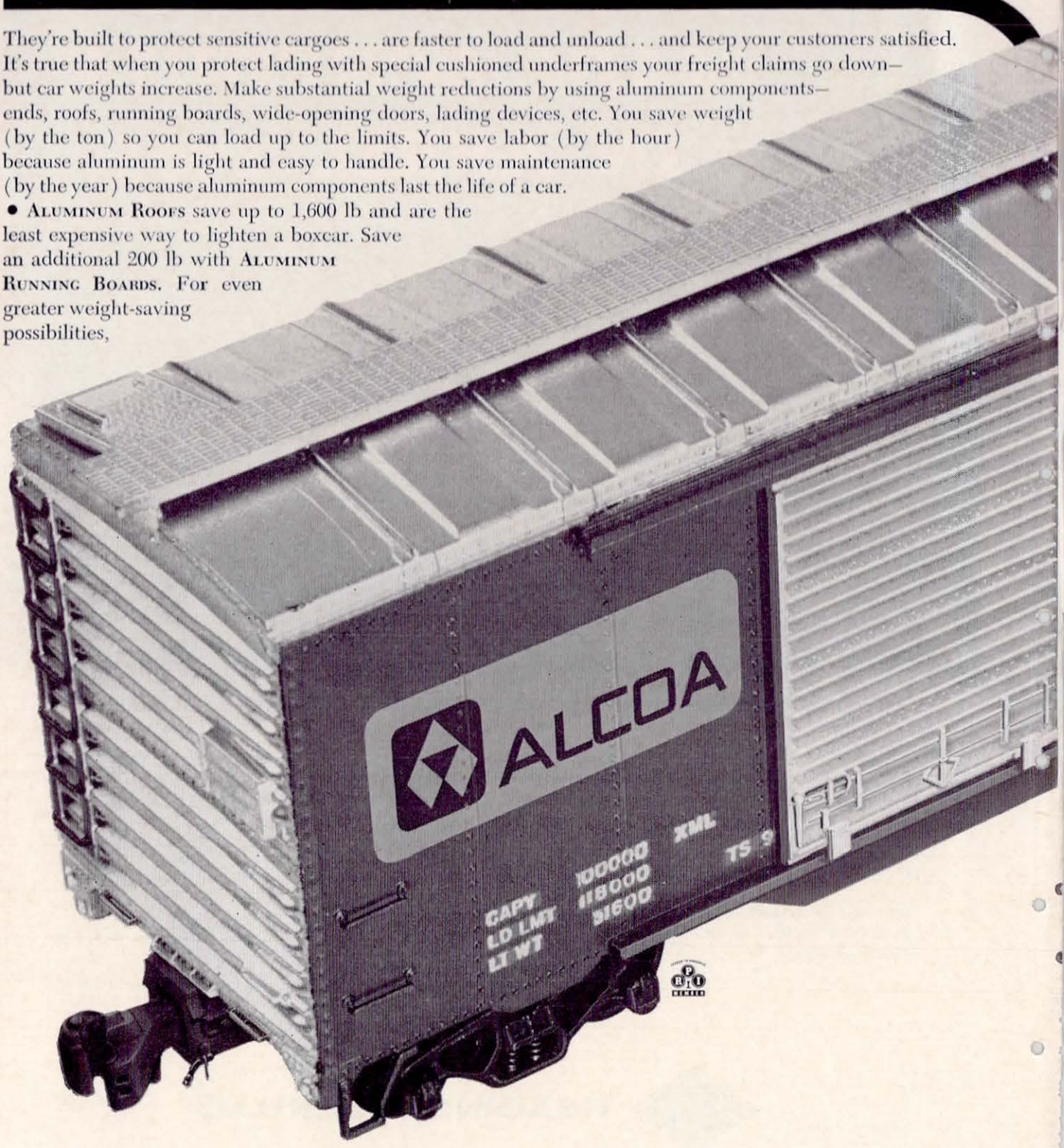
Reading Lines

READING RAILROAD

Here's how new-generation freight cars change for the better

They're built to protect sensitive cargoes . . . are faster to load and unload . . . and keep your customers satisfied. It's true that when you protect lading with special cushioned underframes your freight claims go down—but car weights increase. Make substantial weight reductions by using aluminum components—ends, roofs, running boards, wide-opening doors, lading devices, etc. You save weight (by the ton) so you can load up to the limits. You save labor (by the hour) because aluminum is light and easy to handle. You save maintenance (by the year) because aluminum components last the life of a car.

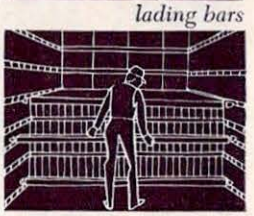
• ALUMINUM ROOFS save up to 1,600 lb and are the least expensive way to lighten a boxcar. Save an additional 200 lb with ALUMINUM RUNNING BOARDS. For even greater weight-saving possibilities,



you can lighten your car another 1,700 lb with **Aluminum Car Ends.** Ask your car builder about aluminum ends, running boards and roofs. **Aluminum Doors** save up to 2,000 lb on 20-ft double-door car sets. Steel doors would weigh twice as much. Youngstown Steel Door Company has the answers to lightening your car doors. Handling these aluminum doors is now a one-man job. **Aluminum Bulkheads** can save as much as 800 lb when you specify the heavy-duty type. **Extruded Aluminum Lading Bars** weigh only 40 lb, and are an easy job for one man to handle. Save labor costs for your customers, maintenance money for yourself. Evans Products has the answers to your lading protection requirements. **Hinged Aluminum Reefer Floors** can be lifted by one man; clean quickly and easily; eliminate contamination of perishables. • With Alcoa® Aluminum components, the new-generation freight cars are a change for the better. Talk to your car builder about aluminum; if you want more details, contact Aluminum Company of America, 1775-E Alcoa Building, Pittsburgh, Pa. 15219.

bulkheads

lading bars



hinged reefer floors

ALCOA BRINGS YOU AMERICA'S FINEST NEWS SHOW...THE HUNTLEY-BRINKLEY REPORT, ON NBC-TV

CHANGE FOR THE BETTER

WITH ALCOA ALUMINUM

ALCOA

What happens when trucks take the train?

EVERYBODY WINS! Railroads started "piggybacking" truck-trailers on flatcars to give customers a unique combination of the long-haul speed and economy of trains and the flexibility of trucking. The result is a better-service boom! In 1964 piggybacking shifted nearly 2,000,000 truck-trailer movements from roads to rails, and this volume could double in the next five years. This great transportation revolution benefits everybody with lower costs and faster delivery all the way to supermarkets. It's one more way in which the taxpaying railroads are winning new business with new ideas, providing better service at lower cost, and helping shape a better future for all America.

ASSOCIATION OF AMERICAN RAILROADS

Santa Fe is the PIGGY-BACK Way

Si! Si! Chico. Piggy-Back is one of Santa Fe's fastest growing services because it gives shippers railroad dependability, plus the convenience of door-to-door delivery by truck.

Santa Fe's Piggy-Back fleet of trailers can handle almost any kind of freight. 1235 trailers are now serving Piggy-Back shippers and more trailers are being added.

Now 89 Piggy-Back Centers and ramps are strategically located along the Santa Fe to make this service available to or from almost any Santa Fe-served community. In connection with the plans of Piggy-Back operation, shippers hundreds of miles from our tracks can have Santa Fe trailers move to and from the door of their plants or warehouses.

Your nearest Santa Fe representative can give you all the facts about our fast-moving Piggy-Back service.

SANTA FE GOES ALL THE WAY TO HELP SHIPPERS

Santa Fe's Piggy-Back Fleet includes these types of vans:

Insulated vans to protect special commodities.

Refrigerated vans for perishable and frozen foods.

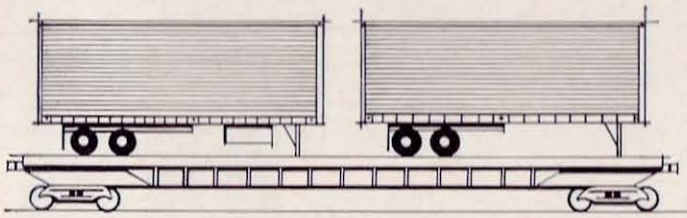
Open-top vans for overhead loading of commodities requiring weather protection. Removable sides permit use as flat bed.

Flat bed trailers for machinery, and other large heavy shipments.

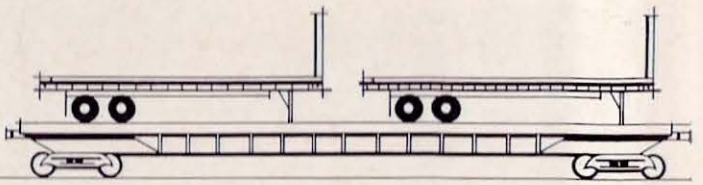
Expandable flat bed trailers for loads of unusual length.

Large fleet of standard closed vans for general types of traffic.

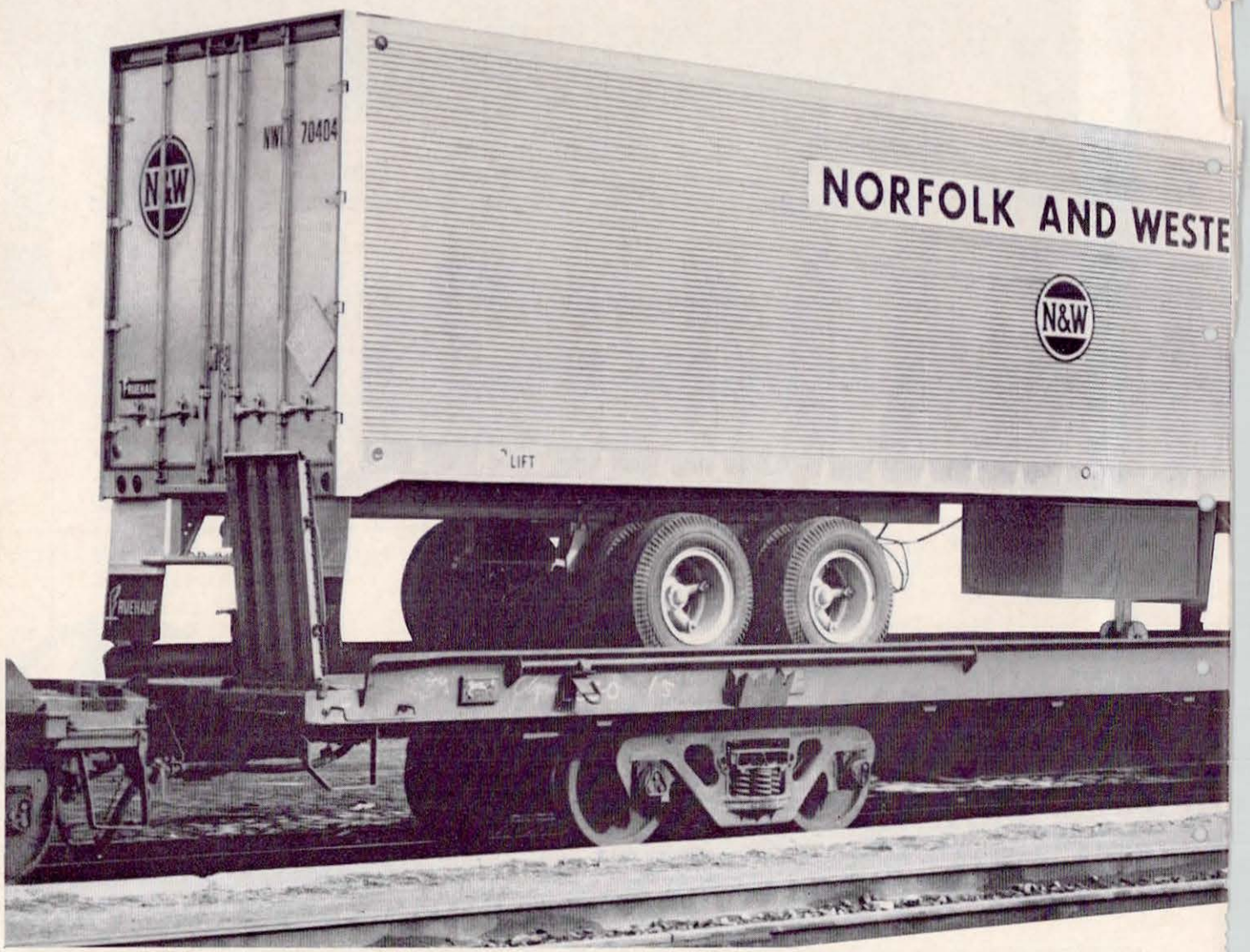
Complete piggyback service with FRUEHAUF Trailers wins more shipments...earns more profits



NORFOLK & WESTERN'S piggyback service includes refrigerated as well as dry freight Fruehauf Trailers.



Heavy, bulky, concentrated loads travel piggyback for N & W customers via Fruehauf Platform Trailers.

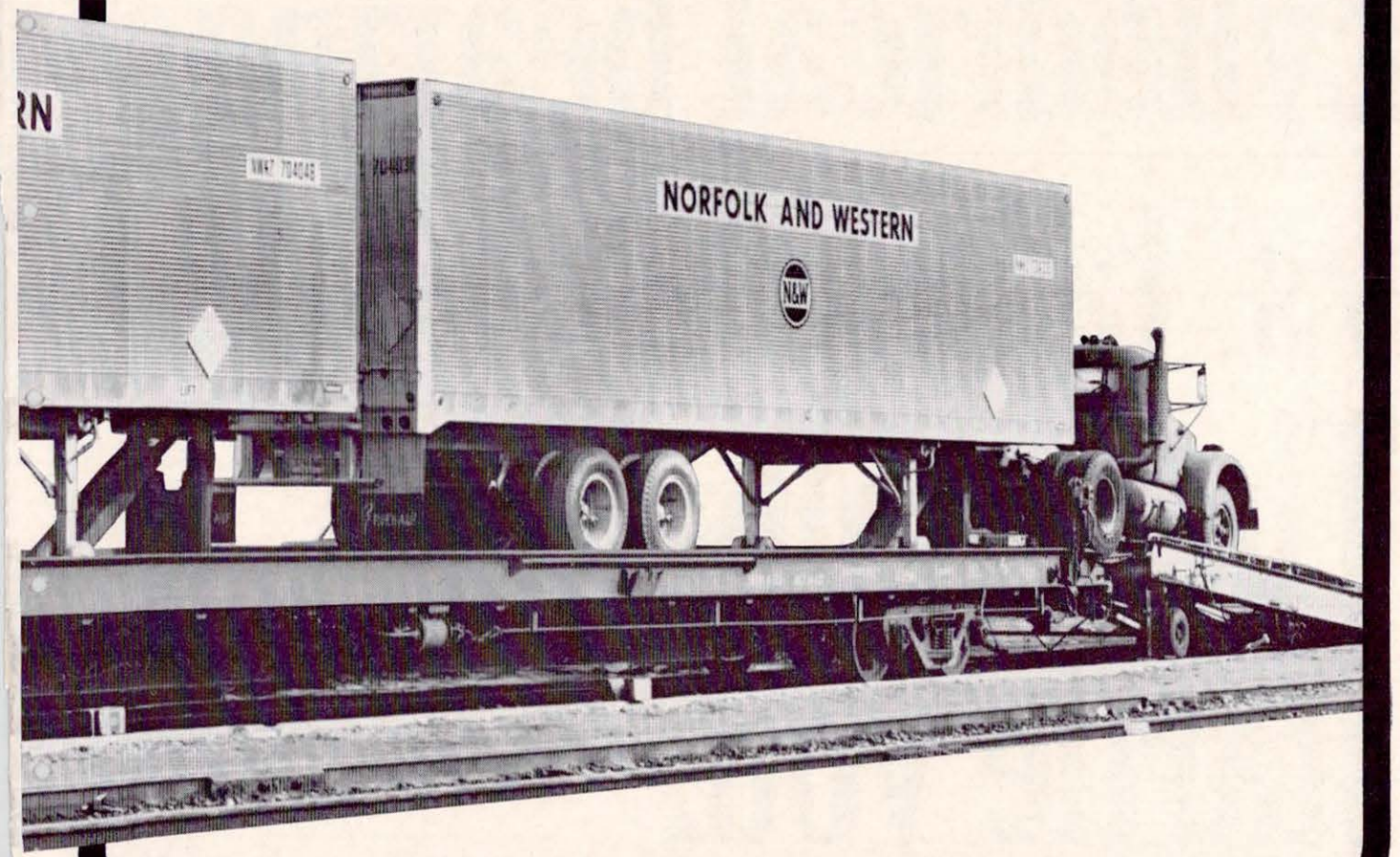


N&W

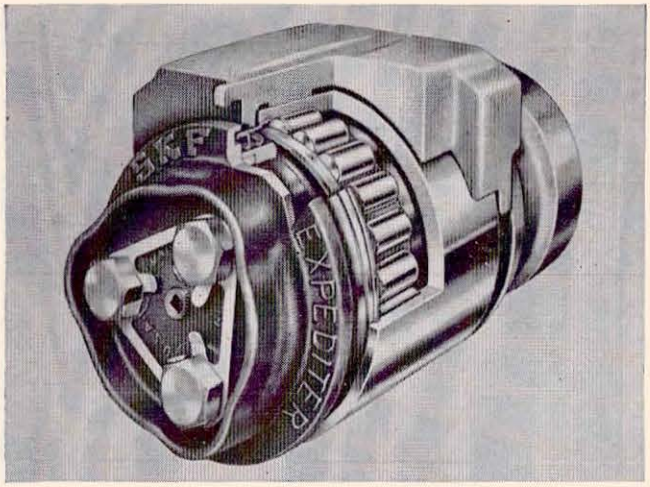
Ask Norfolk and Western Railway, Roanoke, Virginia. They offer complete piggyback service. That means Volume☆Vans . . . reefers . . . open tops . . . platforms . . . insulated vans . . . every type of engineered transportation unit from the complete Fruehauf line. Roomy, tough and weather-tight, they travel through fourteen states in the 8000-mile single-system railway service offered by N & W. Wherever they go, they're near Fruehauf service facilities—factory-owned branches in key cities from coast to coast—to keep trailers in profitable operation for years to come. Ask your Fruehauf representative to show you how Fruehauf Trailers provide better piggyback service, more piggyback profit. **Fruehauf Division, Fruehauf Corporation, 10953 Harper Avenue, Detroit, Michigan 48232.**

FRUEHAUF TRAILERS
Since 1914

"ENGINEERED TRANSPORTATION". . . The Key to Transportation Savings



What happened when we tested cylindrical bearings vs. tapers? The results may startle you.



Brake Shoe sells and services freight car roller bearings. We don't make them. So when we set out to find the best bearings for railroad cars, we had no axe to grind.

If square bearings did the best job, we would have sold square bearings.

Brake Shoe launched a series of exhaustive tests. Not only on existing bearings, but on experimental designs. After months of testing, it became clear one bearing was far superior to all others on the market: SKF's "G" design "Expediter"* with cylindrical rollers.

Our tests showed that SKF's "Expediter" was more than just marginally better than highly regarded tapered bearings. It actually outperforms tapers in 7 important ways:

1. Takes up to 3½ tons more radial load.
2. Absorbs thrust without wedging action.
3. Gives higher operating speeds, yet runs cooler.
4. Lasts longer because there's less fatigue.
5. Has easy-on, easy-off design that lets you remove, inspect and replace bearings on the spot instead of in the shop—an 80% saving in time.
6. Prevents end-smearing of the raceways, thanks to sphered roller ends and angular contact flanges.
7. Has shrouded sealing that keeps grease in, dirt out.

Performance like this can save your company money and trouble. Wouldn't it be wise to investigate SKF's "G" design "Expediter" before you invest? For all the facts, call your Brake Shoe representative. Or write for our "Expediter" booklet to:

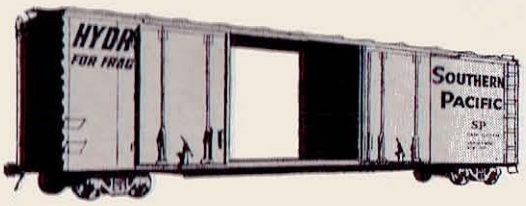
Railroad Products Division

Abex

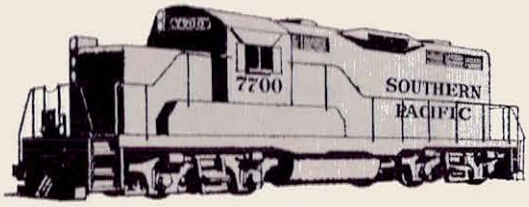
AMERICAN BRAKE SHOE COMPANY
530 Fifth Avenue • New York, N. Y. 10036

*A registered U.S. trademark of SKF Industries, Inc.

6516



4,045 wide-door box cars, including 2,185 insulated cars and 160 giant 10,000-cu.-ft. cars for auto parts. All of these new cars have cushion underframes and most have interior load protection devices.



487 diesel locomotives, will increase SP's total power to more than 4,000,000 hp. These new diesels range up to 5,000 hp to handle heavier loadings and faster train speeds.

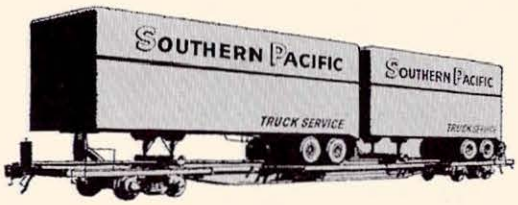
Southern Pacific invests $350,000,000 in new freight equipment

A record-breaking outlay for 1964-65-66! This massive capital investment in more than 14,700 new rail cars, locomotives and trucks, is one of the keys to lower transportation costs for U.S. industry. By improving SP's efficiency and offering shippers opportunities for savings, it's helping SP hold the line against freight rate increases.

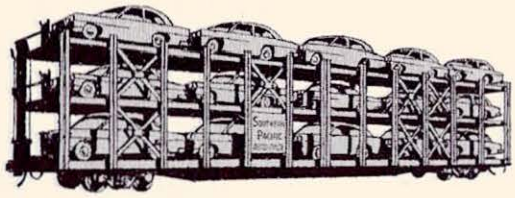
Flat cars, wide-door box cars and giant hoppers offer savings through mechanized handling of shipments like lumber, plywood and bulk commodities. High-capacity cars permit volume loading with "incentive"

1,350 hopper cars, including 600 covered hoppers (like the 100-ton center-flow giant shown), 250 special Airslide covered hoppers, and 500 high-capacity open hopper cars.

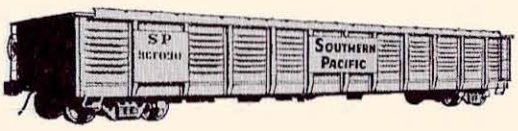
1,307 flat cars, including bulkheaded, cushion underframe and heavy-duty types. *Four new 300-ton-capacity cars, like the one shown, double the national supply of these extra-heavy duty cars.*



700 Piggyback flat cars, including 350 to carry refrigerated trailers, will help meet the demand for this flexible service. Last year, SP carried more than 140,000 highway trailers in Piggyback service.

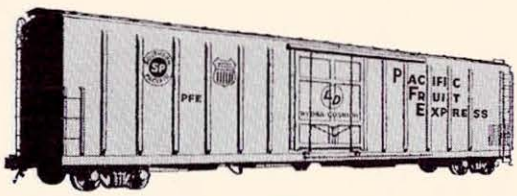


205 Auto-Pack cars, bi-level and tri-level, for carrying new automobiles and trucks. Other specialized cars include 42 high-capacity tank cars.



1,925 gondola cars to carry loads of 100 tons or more. 1,300 of these versatile cars, important to the construction, steel and wood-chip industries, will be placed in service this year.

1,568 highway vehicles, including new tractors, trailers and trucks, to continue improvement of SP's extensive highway trucking services over more than 26,000 miles of western and southwestern highways.



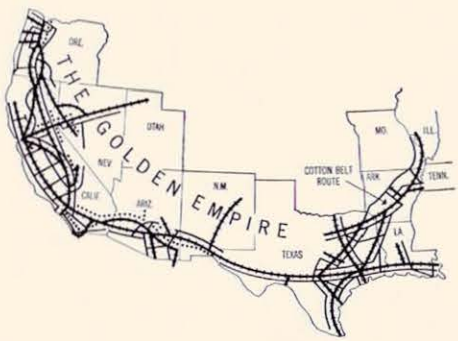
2,250 mechanical refrigerator cars, and 825 refrigerated highway trailers, to carry Western produce to the East. Rail cars can return with dry freight, thereby making available even more "box car" space.

Even more wide-door box cars! SP is spending *an additional $9.3 million* during 1964-66 to convert over 7,500 standard box cars to more useful wide-door design. SP's wide-door fleet is the largest in the U. S.

rate reductions for many kinds of shipments.

Every economy is important as operating costs increase. For example, during 1964 and 1965 alone, wage increases on SP will total $32 million —more than 3 times anticipated savings from elimination of obsolete work rules.

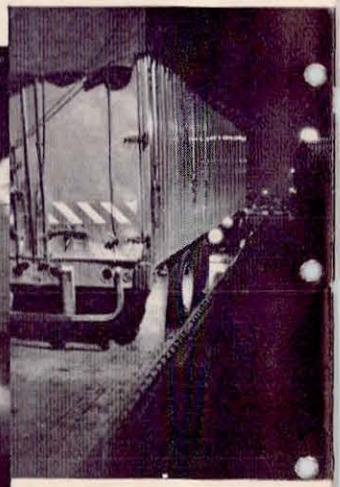
And SP is investing millions more to improve terminals, track, communications and other facilities. It's all part of the endless effort by Southern Pacific to anticipate customers' needs, and meet them with competitive transportation services.



Southern Pacific

Serving the Golden Empire with
TRAINS • TRUCKS • PIGGYBACK • PIPELINES

HERE COME THE



■ Midnight and the pigs are coming! From everywhere. With everything. Frozen foods. Fresh produce. Sportswear for Long Island. Cake mix for Newark. Beef. Wire. Siding for homes in Connecticut. Grass seed for their lawns. A thousand items to fill the needs of a sprawling metropolis.

Rain slides across the big yard lights . . . beats on trailer tops. Alright! Let's go! Get 'em off! Tractor engines pound, the pulse picks up. Hitched? Ready? Go!

Here comes the straddle crane. Rolling on giant's legs. Straddling train and tractor. Got the trailer? Lift it off, hook it up, take it out of here!

It's dawn. Trailers are off. Now for the autos! Chevies for Trenton. Fords for Hartford and New Rochelle. Unchain 'em. Let 'em loose. Bridge plates down? OK! Drive 'em off.

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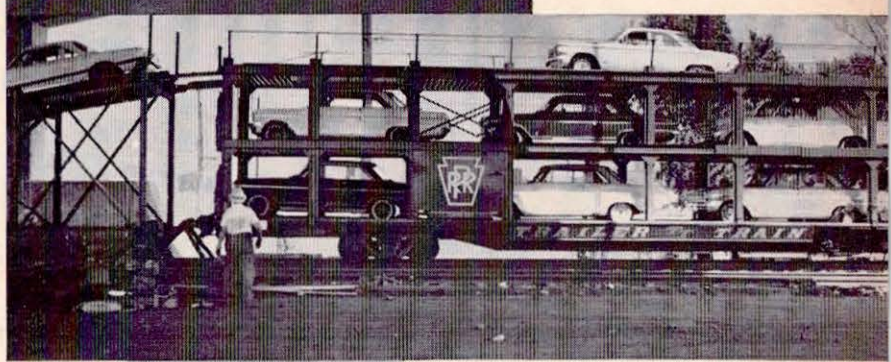

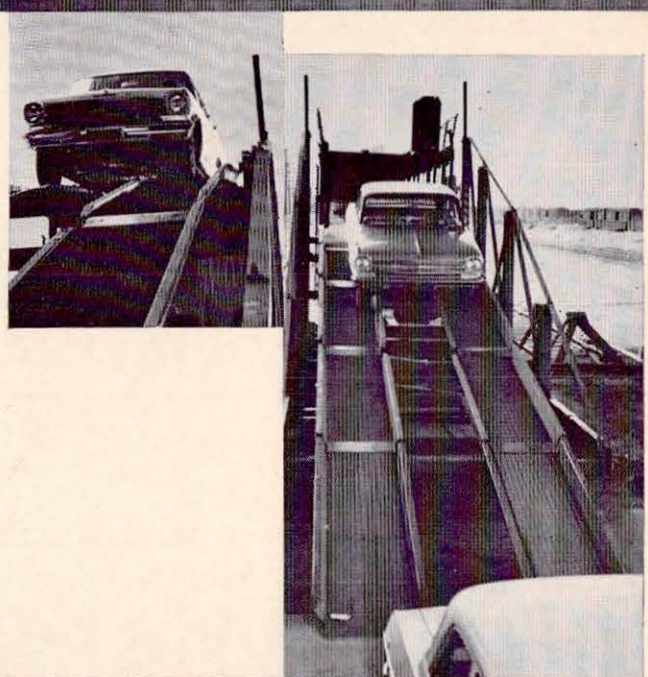

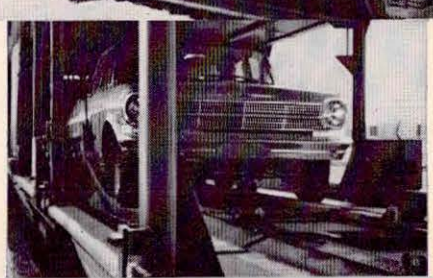

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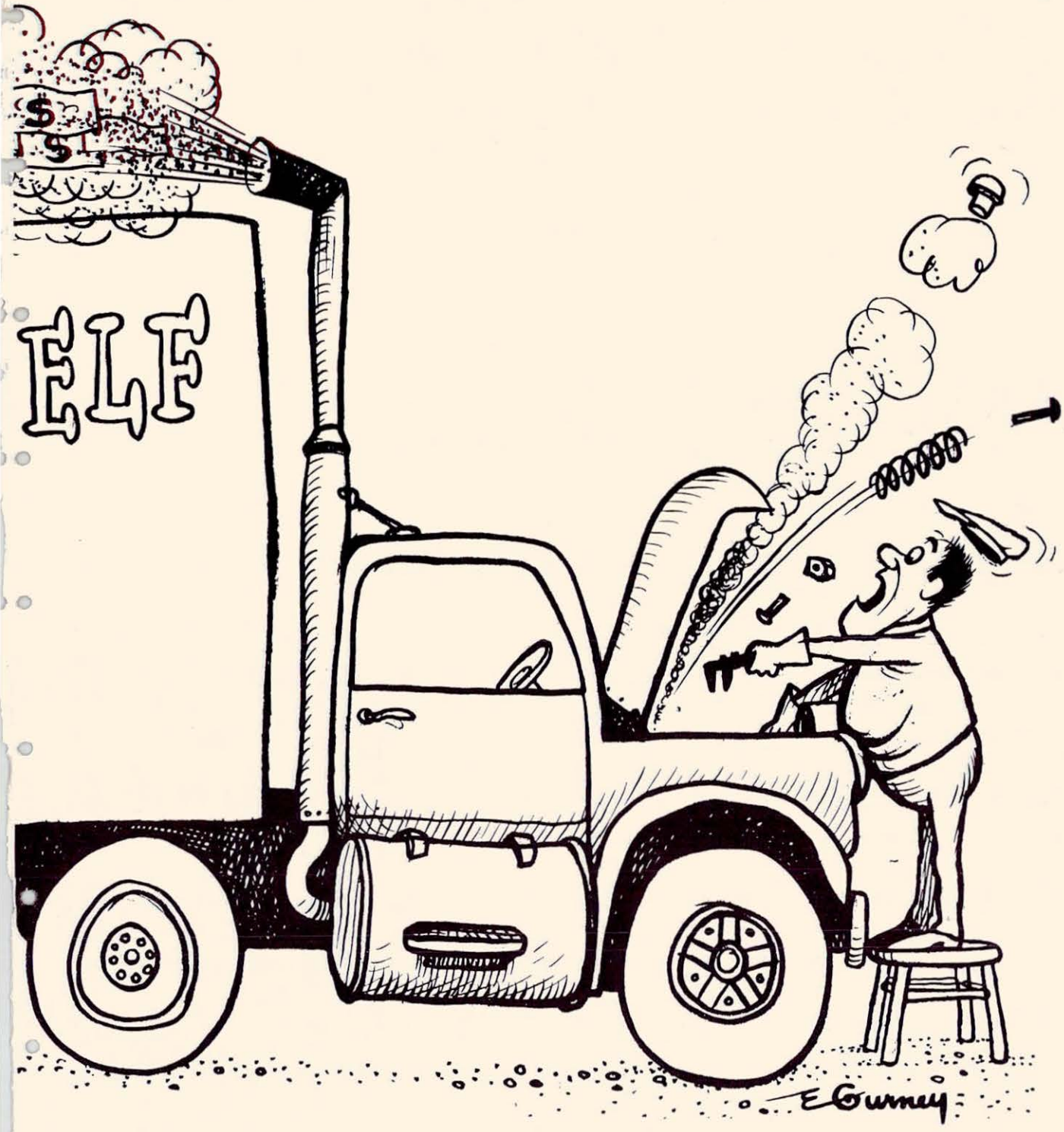

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PIGGYBACK

Progress has its problems

This can be—and probably will be—the first million-carload year for piggyback. But continued growth isn't the whole trailer-container story. Railroads know that growth has its problems—and they're moving now to clear away those problems and insure piggyback's greater development.

"Just before a rainy midnight . . . the Pennsylvania Railroad's LCL-1, a fast through freight to Chicago, pulled away from the fog-filled Meadows Yard in the marshlands of New Jersey with a half-dozen truck trailers secured piggyback-fashion to flat cars. . . ."

That's the way the Pennsylvania described the start of TrucTrain, in 1954. But then—

"Our piggyback service celebrated its 10th year with faster schedules, better terminals, more flat cars, more trailers and more business. Revenues reached a new high of $35.5 million, an increase of 6.2% over 1963. The number of highway trailers carried rose by 5.9% to 224,151."

And that's how PRR described piggyback — TrucTrain — at birth-plus-10-years, 1964.

● **The story in short.** In many ways, the PRR TrucTrain story is a capsule biography of piggyback—a success story unparalleled in railroad traffic history and challenged only by the dramatic rebuilding of new-automobile business.

Now, in 1965, piggyback is heading toward a key chapter in the tale of triumph. The event to be recorded may take place in the fog-filled New Jersey marshes, it may take place near Chicago's Loop, it could happen on the edge of downtown Los Angeles. But sometime next December—if all goes well—some U.S. railroad will move the 1,000,000th piggyback revenue carload of the year. And the waybill under which that car travels could well be considered an historical document.

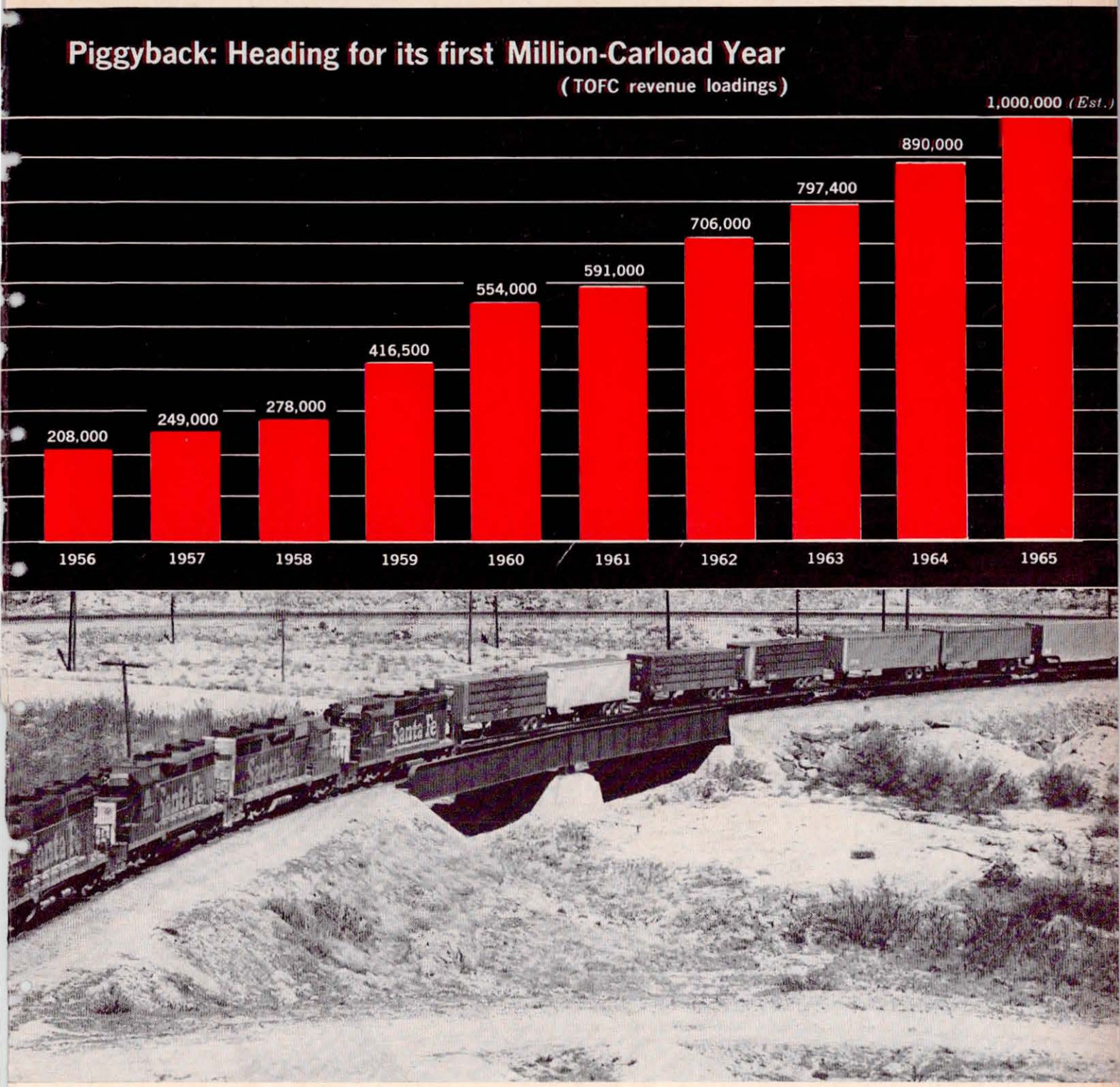
Since 1954, when an ICC decision cleared the way for piggyback development in a major way, trailer-on-flat-car service has never taken a backward step. There have been pauses—as during the recent Commission investigation of piggyback practices—but the line on the TOFC carloading chart has still maintained a steady climb. Last year it almost made 900,000—and, with 1965 loadings running more than 15% ahead of '64 figures, piggyback this year is almost certain to pass the magic-million mark.

● **It's not all sunshine.** But there's more to the million mark than magic. There are also problems—some common to almost all rail freight operations, some developing from the intermodal nature of TOFC service, some

chargeable to the very fact that piggyback has grown so fast.

Of these, the problems associated with growth may be the most perplexing—but help may be on the way, through the recently organized National Railroad Piggyback Association.

NRPA has the support of virtually every road engaged in a major way in piggyback. It also has the firm backing of railroad operating and traffic officers who see problems, present and poten-



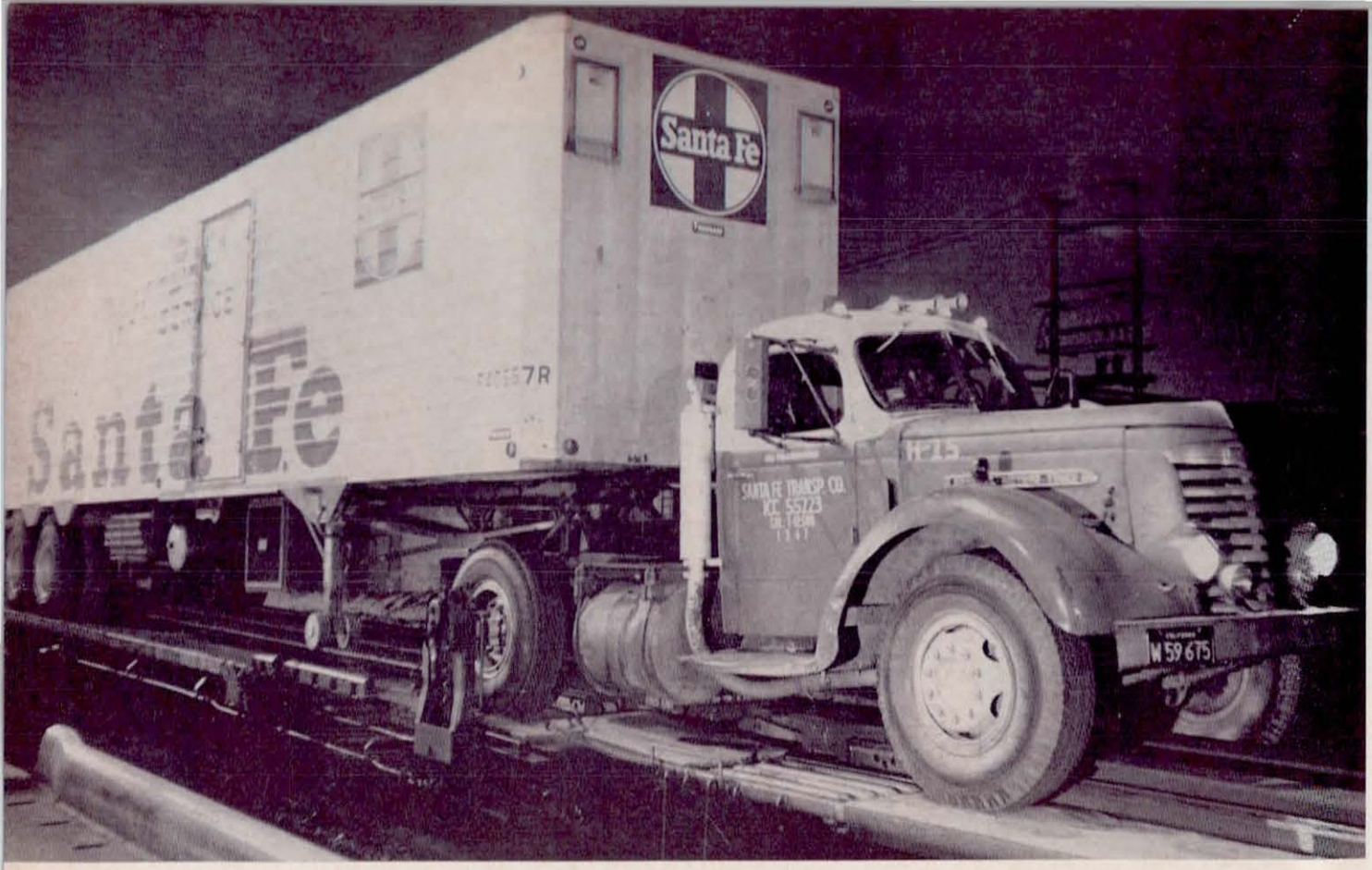
tial, and who think that free and frequent interchange of fact and opinion can solve today's problems and head off tomorrow's.

● **For the future:** Piggyback needs such an organization, in the opinion of a number of TOFC experts, if it's to swing past the 1,000,000-carload point and keep going.

Part of this concern has to do with the basic complexities of TOFC, part involves the fact that indications of plateaus are already appearing in certain areas. Unlike the booming new-auto business, where railroads are dealing with an extremely small number of shippers, piggyback runs the gamut—from subsidiaries to independent (and often competing) truck lines, to freight forwarders, to thousands of individual shippers whose product may be prefabricated houses or watermelons.

In a human-being-type child, 10 or 11 years old, these troubles would probably be regarded as growing pains or pre-teen problems, and the supposition (usually correct) would be that they'll go away. But piggyback is a different-type child, one that's going to take a lot of tender care to insure continuing growth—and that's one big reason for the enthusiasm over the founding of a national TOFC association.

● **The done and the undone.** Traffic men, in particular, seem concerned



NIGHT AND DAY . . .

and around the clock, the word for piggyback terminal operations is "action"—as in the Los Angeles terminal area where both Santa Fe (above) and Southern Pacific maintain extensive facilities for piggyback.

that the 10-year boom in piggyback may have seen at least a few things done that would have been better left undone. This, for example, is a comment from a traffic man on a railroad which was a piggyback pioneer and is still a leader in the industry:

"Piggyback is changing every day—but the trouble is that everybody seems to be pulling in a different direction. You take Plan III and Plan IV. Railroad people thought it would be a good idea to have a piggyback arrangement where the shipper would furnish the trailer or both the trailer and the car itself. But the ink wasn't even dry on the tariffs before one railroad or another started leasing trailers or cars or both to shippers.

"Or, take the problem of standardization. We suffer from a lack of standardization, in equipment and in efforts. In many ways, every road doing business in piggyback has the same types of problems. But, the way things have been, these problems have been hard to analyze—mainly because of the separation and the distance involved between the people who are involved with the problems.

"Or, here's another situation. When the big boom developed in piggyback, everybody went rushing in. Sometimes, roads just copied truck tariffs when they went to TOFC in a big way. And some wound up copying paper rates."

● **How about the curve?** This traffic officer tends to be a bit skeptical of roads, late-comers to TOFC, who report a growth curve that goes almost straight up. He knows that percentage increases, built on a narrow base, are impressive—and he's well aware that piggyback today doesn't always need the sell-from-scratch approach with shippers that it required 10 or even five years ago. But at the same time, he's concerned that eagerness—or over-eagerness—in promoting TOFC can produce an economic backlash either through a simple transfer of traffic from box cars to trailers or through the winning of TOFC business that is marginal, at best, from a profit standpoint.

These are some of the problems that the new National Railroad Piggyback Association may be considering—but they're only some.

It would be hard to argue with the stated purpose and objectives of NRPA. The organization's by-laws say it aims to "foster, protect and promote the interests of railroads engaged in the business of handling traffic by piggyback, to advance such interests throughout the United States and elsewhere through cooperation and organization, to stimulate the widespread use and recognition of such railroads and to assist in the solution of problems affecting the membership."

● **How NRPA will work:** NRPA has set up a seven-point list of ways-and-means to fulfill these objectives:

—Establish a businesslike code of piggyback ethics and encourage the membership to follow it.

—Promote equipment utilization.

—Promote, improve, clarify and coordinate piggyback services.

—Work for standardization and interchangeability of equipment.

—Create better working relationships and cooperation between lines.

—Correlate and advance containerization, with a view to achieving standardization.

—Communicate developments in the piggyback industry.

Forming an organization and appointing committees is no guarantee of success—but NRPA has made a good start. And certain of the founders' principles — mainly concerning frequency of meetings and areas of study —indicate that this can be a valuable organization, and not just another ornament hung on the railroad industry.

● **An active group.** Piggyback association members will meet not once but four times a year (three meetings

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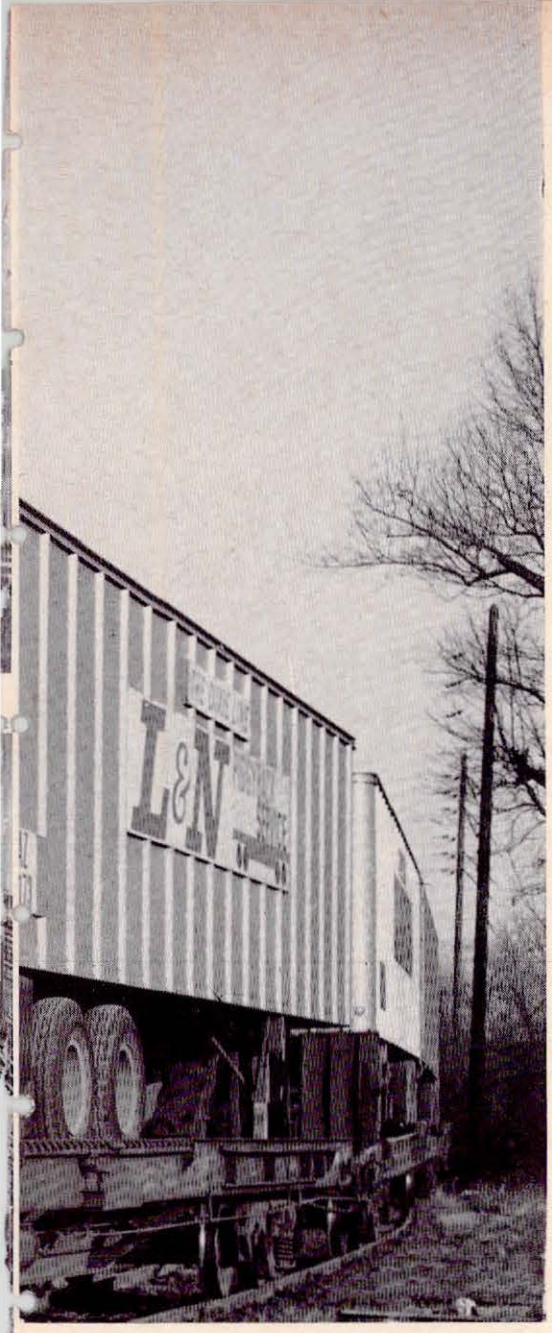
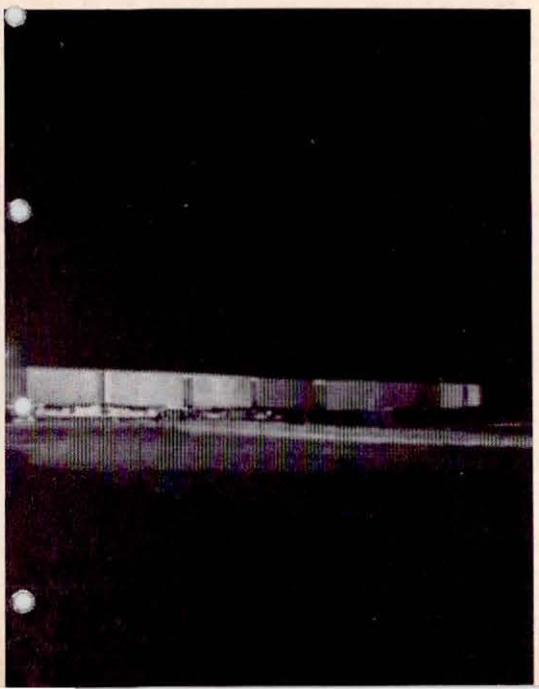
DRAMATIC GAINS in piggyback were registered by many roads last year—and Louisville & Nashville was right up near the

SPEED IS THE KEYNOTE for New York Central's Flexi-Van—and NYC has 11 F-V speedsters operating between major



top, with a 35% increase for TOFC.

system points on passenger-train schedules.



will be held in Chicago and one session will be held at some other point). And NRPA starts with six permanent committees, covering almost every vital area in TOFC—sales, operations and terminals, mechanical, containerization, car equipment and trailers.

Critics of some industry associations contend that the groups meet for the sole purpose of meeting—but it's hard to see how that charge could ever be leveled against NRPA. Here, for example, are a few of the sales and operating subjects discussed at the group's two-day meeting last month in Chicago:

—What value has been derived from use of specialized TOFC salesmen? Has the specialist helped broaden the knowledge of the general sales force in relation to piggyback?

—What is the value of TOFC literature to the salesman? What are the advertising and promotion methods being used?

—What positions are being taken with regard to railroad-owned trailers being interchanged by other railroads to truck lines for over-the-road deliveries outside the commercial and switching zones of a city?

—How can containerization be sold, when there is no unusual shipper demand for it? What are the benefits to a railroad in promoting containerization?

—What would be the advantages of carrying, on all waybills, weight restrictions as well as a listing of any special equipment which is a part of the trailer?

—What are the responsibilities for detention at destination of trailers moving on Plan III on trip leases?

● **How about the hardware?** Mechanical problems were up for an equally thorough airing—in these areas, among others:

—Increases in highway trailer lengths and widths, and the effect upon flat-car dimensions.

—Experience with and opinions on use of temperature-recording devices with tape records on perishable loads in refrigerated trailers.

—Meat-hook damage to trailer sidewalls, and what's being done to eliminate it.

—Sliding tandems vs fixed-position wheel assemblies on piggyback trailers.

—Nose-mounted refrigerator units on 40-foot trailers, and possible close-loading problems that can develop on 85-foot piggyback flat cars.

—Expandable flat-bed trailers, and the problems of handling them in TOFC service.

● **NRPA's future.** Piggyback specialists are approaching NRPA's activities enthusiastically. As one puts it, "This organization has a great potential. We can pool our ideas—and we can make very strong recommendations, even though we may not have any power to enforce what we believe should or shouldn't be done. In the one area of standardization, I think a national piggyback association can do one terrific lot of good."

(Perhaps ironically, the industry's biggest owner of piggyback rail equipment—Trailer Train—is not a member of NRPA, which is set up as an all-railroad association. But, as one member of the piggyback group points out, TTX gets a sizeable part of the credit for the ideas that led to formation of NRPA—via Trailer Train-sponsored meetings to discuss TOFC equipment matters.)

Whatever the potential of the National Railroad Piggyback Association, however, the 10-year boom in TOFC has also produced problems that will have to be met at levels somewhere under that of an industry-wide organization.

● **The TOFC shortage.** One of these puzzlers—and it should come as no surprise—is car shortage, or car-and-trailer shortage. General-service cars get most of the publicity when shortages are discussed or debated—but the rapid growth of TOFC, and other factors, has also put piggyback equipment in short supply despite the best efforts of Trailer Train to keep new cars coming into the pool.

For some roads, piggyback equipment supply follows the same pattern as box-car supply: More cars are originated than terminated—and when equipment moves off-line, it's a long time coming back, sometimes.

Improved car utilization, most railroad men agree, would go a long way toward easing general car shortages—but in piggyback the ultimate answer may simply be to keep building up the fleet. Piggyback equipment-utilization is already at fantastic levels, compared with the car-use figures on the average freight car.

● **The search for action.** Still, virtually every major piggybacking railroad is looking for ways to get more action out of its flat cars and trailers and containers. A number of roads have set up elaborate visual control centers that will show at a glance the status and location of equipment. Others are putting computers to work on the problem. Burlington, for example, has put its trailer records on the computer, and a complete status report on any trailer is instantly available.

As with many other situations in railroading, however, in piggyback it seems to be the outside influences, not the inside problems, that are harder to grapple with.

One of these outside influences is the continuing demand of the motor-carrier industry for bigger and bigger trailers. Problems associated with

AUTOMOBILE TRAFFIC now moves largely by auto-rack—but piggyback has managed to retain a part of the new-car business,

Some of piggyback's problems are still unresolved—but the future

trailer height have been met pretty squarely—by railroads spending millions to improve clearances or pushing container systems, by carbuilders designing low-level flat-car equipment. But increases in trailer width or length could create a whole new set of problems—and truckers in various parts of the country are keeping the pressure on for longer and wider vans.

● **On to 45 feet.** One of the matters on the agenda of the recent National Railroad Piggyback Association meeting concerned just this situation—the authorizing of 45-foot trailers in one southern state. An increase in trailer width of even six inches might require modification of a sizable number of cars in the present fleet. But a growing acceptance of 45-foot-long boxes could throw a whole new set of standards into the business. And the alternatives could be complex: Mix long and shorter trailers on existing 85- and 89-foot cars; go to a type of equipment that would accommodate 90 feet of trailer, or switch back to the single-trailer cars that TOFC began with.

Labor problems could be—again—another outside influence affecting piggyback's rate of growth. Over the past several years, the Teamsters union appears to have let up on what had once been a steady offensive aimed at TOFC. But demands for a $5-per-piggybacked-trailer payment into a union welfare fund were, to put it mildly, not well received. And the union failed to keep the railroads from recapturing a large piece of the new-automobile business. Still in some areas, Teamster pressures have apparently taken a toll.

● **Down goes Plan I.** Take, for example, the experience of one major piggybacking railroad. From 1954 until 1960, this road's TOFC growth curve moved up sharply. It peaked in '60, and has varied only slightly in the past four years—but always below the 1960 high. What happened in '60? Well, for one thing, the road's trucking subsidiary—faced with the Teamster $5-per-trailer demand—made a compromise agreement which said, in effect, that if a driver were available a trailer would be moved over-the-road. The figures on this road's Plan I piggyback since then tell the story: In 1959, 15,824 trailers went TOFC; in 1964, the total was 5,821. In 1959, Plan I trailers accounted for almost one-third of all loaded trailers moved TOFC, in 1964, Plan I accounted for less than one-ninth of the total.

What this means, of course, is that the road's piggyback sales forces have had to scratch even harder—to offset a handicap having nothing whatsoever to do with rates or services but stemming solely from a labor agreement. They've succeeded in holding the line—and the top men in the piggyback department think the business may now be ready to head into another climb.

● **Ex Parte 230 still around.** Finally, the still-unresolved issues in Ex Parte 230 could play a part in shaping piggyback's future from the outside. In the 230 case, the Interstate Commerce Commission issued a set of 26 new rules for piggyback. In general, current practices were OK'd. But the Commission also held that motor or water common or contract carriers could use piggyback service offered to all other shippers—in effect. Plans III and IV would be extended to for-hire operators at the same rates and with the same conditions that apply to use of the two plans by private shippers.

Other rules set certain limits on use of piggyback by regulated motor and water carriers, and called for more explicit listing of all rail charges, including leasing charges, involved in TOFC operations.

Railroads tried to get a reconsideration on 230—but the Commission denied the request, and suits were subsequently filed. Originally, the rules were to become effective last Sept. 24—but, in light of the legal action, the ICC issued a postponement.

● **The aim is accurate.** All in all, however—and despite the inside and outside problems—the industry's piggyback experts have proved quite adept at steering their sprightly youngster in the right directions. And the assumption has to be that this skillful guidance will continue—any letup now, as one TOFC sales officer puts it, would be ridiculous.

What lies ahead?

Then what about the future? What can be expected of piggyback? How much of a factor can it be in the total traffic picture? In other words, how high is up?

There is, thus far, no sign of any leveling off, even though a few roads are finding it more difficult to match the TOFC-traffic increases of the late 1950s and early 1960s. On a percentage basis, many individual roads are reporting smaller and smaller increases—but that's only natural, since gains are being added to a bigger and bigger base each year. And from an absolute standpoint, measuring by carloads or trailerloads, most roads are moving along in good style.

● **For 1965 — 15%.** Nationally, there appeared to be some tailing off during the period when the ICC was working with Ex Parte 230. But 1964 still closed with a handsome gain for piggyback—and the industry as a whole is once again posting a rate-of-gain in the 15% range.

Two main factors will probably be the big influences on how far TOFC

principally in western territory.

looks bright

can go: The increase in transportation requirements associated with growth of the national economy; and the extent to which railroads will permit shifting of traffic from other types of equipment into piggyback.

Most economic experts seem to see a steady increase in transportation demand. Railroads, meanwhile, have stopped the years-long slide in the proportion of total freight traffic moving by rail. Last year saw an actual increase in the share of the total accounted for by the industry. Piggyback should benefit in absolute fashion from this reversal of the traffic trend—and it should also gain if a booming economy means production of more and more goods of a type susceptible to combination rail-highway transportation.

● **To switch or not?** The second factor—the extent to which traffic will be switched—may be harder to measure. From the start of TOFC operations, most roads have been careful to avoid building piggyback at the expense of box-car traffic. Most say they've been successful in this careful approach. Most contend that TOFC traffic is new business—business that formerly moved over-the-road.

But it seems inevitable that some switches will take place if piggyback is to be the giant some say it will be—accounting eventually for 30% or 40% or even 50% of traffic. One traffic man was being a bit facetious not long ago when he looked at a list of box-car orders, compared it with a list of equipment available and observed that "maybe piggyback could be the answer to the box-car shortage—if we had enough piggyback equipment."

● **The big build-up.** Facetious, it might have been. But there's reason to believe that TOFC is, indeed, picking up some of the slack left by shortages of conventional rail-car equipment. And, judging from recent orders, owners and operators of TOFC equipment intend to keep the flow coming, and fast. Trailer Train itself has already added 2,930 flat cars to its fleet this year. Another 500 cars (along with 1,000 mechanically refrigerated trailers) will go to Pacific Fruit Express, doubling the PFE piggyback fleet. Orders from several individual railroads swell the new-car total further. And the trailer business, already booming, got another boost with XTRA's purchase of 1,350 units from six manufacturers. These trailers—which XTRA believes represent the biggest single order ever placed—were to be delivered by the end of May. But another 250 units are scheduled for delivery later, and the company—which leases trailers on a per-diem basis—may place still another 250-trailer order this year.

Equipment suppliers, meanwhile, are continuing research-and-development work to improve the product. Among the areas under intensive study: Improvement in trailer-securement devices, and further development of the all-purpose car. Trailer manufacturers are keeping pace. The new units for XTRA, for example, are made of a minimum-maintenance, high-strength, low-alloy steel which is reported to be 30% stronger than conventional steel—and it never needs painting.

BUILD-UP FOR CONTAINERS

Containers are handling an ever-increasing volume of Southern's rail-highway traffic—about 30% now, or about 50% if containerized LCL is included.

● **Down with costs.** This approach—the swing to minimum-maintenance type of trailer construction—is typical of a strong effort by all the partners in piggyback to keep cost down. In the early days of TOFC, there was little if any accurate cost data. The baby was just too newly on the scene, and nobody had much idea what the upkeep would run. Now, after a decade of experience, piggyback's costs can be more readily assessed. And while there are gratifying reports—low loss-and-damage figures, for example—there are also certain worrisome reports, and the greatest of these may be in the area of terminal costs.

Piggyback, like any other new service, started small. Ramps were installed at a few major terminals, and that was it. But then the wave of expansion hit, and terminal facilities began to dot the map of almost every major piggybacking railroad. With each terminal, however, came a set of terminal costs—and it's this area of cost that's coming to be a principal concern of more and more piggyback men today.

One operating-department officer puts it bluntly: "Terminal and accessorial costs can run very high—they can eat you up. So, it has to be up to every railroad operating man to use all his know-how to keep costs at a minimum."

● **For a terminal—what?** Closely related to this matter of cost-cutting is

the continuing debate over the optimum facilities for a terminal. Piggyback started as an end-loading proposition, and the ramp is probably the most common of all terminal facilities. But then Flexi-Van came along, offering the flexibility of side-loading and of picking containers out of the middle of a string of cars. A number of other side-loading methods were developed. Gantry cranes—and lift-on, lift-off methods—became popular with many roads.

As some TOFC experts see it, flexibility almost has to be the key goal in working a piggyback terminal—flexibility with maximum efficiency at the lowest possible cost. And, at the moment, the traveling-crane method seems to be picking up support. In Chicago alone, for example, several roads have recently put new gantry-crane facilities to work, and another million-dollar installation with a crane is going in this year on still another TOFC terminal.

● **Containers and TOFC.** Growth of containerization, of course, has been a spur for this kind of loading-unloading operation. But a number of roads with high-volume operations in conventional piggyback are finding the crane equally suited to lift-on and lift-off trailer operations. The flexibility is there; so, it seems, is the required speed.

Actually, that pretty well sums up the success story that can be written about piggyback—flexibility and speed. With attractive rates—and they must be attractive or TOFC wouldn't be the success it is—the package amounts to good service, improved service.

And if little more than one decade can bring a 1,000,000-car year for piggyback, can another 10 years double that? It's possible—but check again in six or seven years. There will be further improvements in technology—in car structure, in trailers and containers, in loading-unloading facilities. There will be applications of TOFC to new commodity areas—it's piggyback today which is adding pep to the tired, old LCL business. And there will probably be further development of the solid piggyback train—trailers or containers or a combination—moving on expedited schedules.

● **Problems—and potential.** Much depends on the ways in which piggyback's problems can be solved—the ways in which railroad operating and traffic people can meet the problems associated with rapid growth and the ways in which the industry can contend with outside influences, not all of which will ever be favorable.

Assuming a good measure of success all around, a recent comment from a Burlington traffic man should hold up: "We can't see anything for piggyback but up."

PIGGYBACK

No letup in sight, as TOFC still grows

Ten years' experience has brought a certain maturity to views on the operation—but no loss of enthusiasm for its potential.

Anyone who's afraid the zip is going out of piggyback should go to Chicago Heights, Ill., and have a talk with Chicago & Eastern Illinois President David O. Mathews. Or down to Louisville for a chat with the Louisville & Nashville people. Or to the Santa Fe, Frisco, Southern Pacific, Pennsylvania, Missouri Pacific, Illinois Central, Northern Pacific, Great Northern, New York Central, Chesapeake & Ohio, Southern—or to any one of several dozen other roads whose piggyback-or-container traffic is still strongly and definitely on the upward trail.

Piggyback operations, after a little more than a decade, are developing maturity—but that isn't affecting the enthusiasm that TOFC produces, among carriers and shippers alike.

● **That rate of growth.** C&EI and Mathews weren't chosen as openers for this part of the special mid-year report on piggyback performance because C&EI is the biggest operator. It's far from it, in a league that includes such as PRR and SP, among others. But C&EI piggyback is growing at one of the fastest rates in the industry. And, right now, TOFC may well mean more to C&EI—in dollars and cents—than it does to any other carrier. And as for absolute growth—if C&EI continues at its present pace, it will end 1965 ranking well up on the list, in the 50,000-trailer-per-year range.

Trailer loadings over the first four months of 1965, Mathews says, are up almost 50% from the January-April period of last year. And piggyback, averaging more than 4,000 trailerloads per month, now accounts for about 15% of C&EI's total revenue.

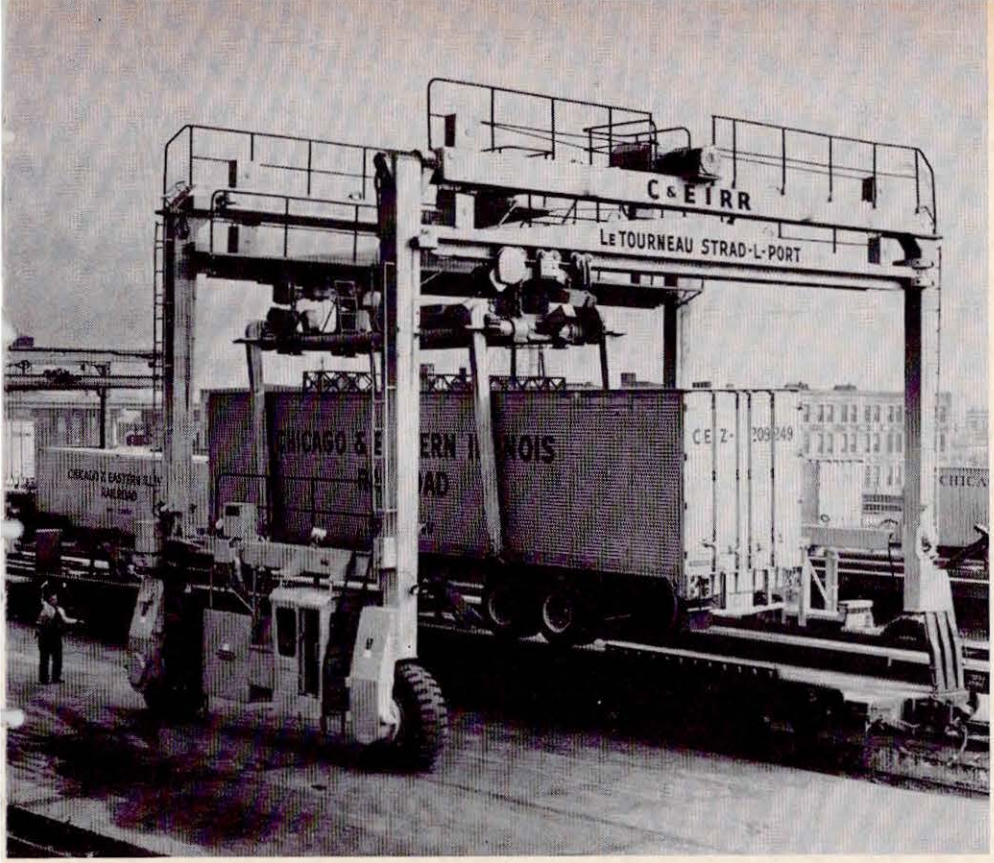
● **Nobody is resting.** In a year when piggyback—as measured by carloadings—is up about 15% on an industry-wide basis, C&EI admittedly is at the upper extreme of the scale. But a number of other roads are also checking in with gains well above the average—and, perhaps most important, many of the major piggybacking carriers are maintaining the feel for experimentation that characterized TOFC's early years and contributed in large part to its development.

In some regions today, piggyback is giving shippers and receivers something they've wanted for years—good, fast, efficient, economical, damage-free LCL service. C&EI has turned its entire less-carload operation over to TOFC. L&N has done much the same thing. Great Northern has had gratifying success with piggyback LCL rates. With these three lines, plus Atlantic Coast Line and Soo Line, there's an effective (if informal) through route for small shipments, Southeast-Northwest, and piggyback all or most of the way.

Even in the East, where LCL has been a drag on the railroads and a disappointment to the shippers, there may be new hope. New York Central suffered a setback—not of its own causing—in trying to set up a Flexi-Van LCL operation. But its prospective partner in merger, Pennsylvania, is about to give the service another go. PRR got out of the LCL business several years ago because of losses. Now, it may go back in. During 1964, PRR says, "re-entry into this field through a joint truckline-rail-truckline arrangement was studied and plans made to introduce such a service in 1965. The new arrangement is expected to restore participation in small-shipment traffic on a profitable basis."

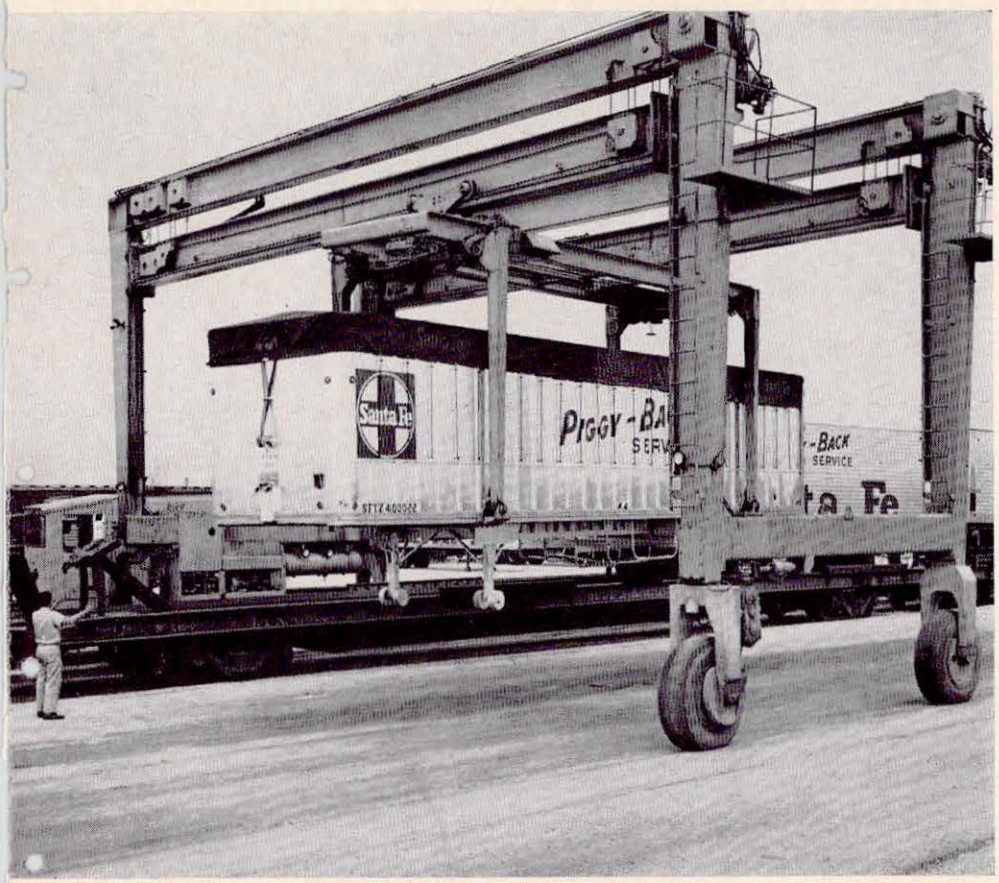
● **GN plugs LCL.** Great Northern is another road which, with the help of piggyback service, is refusing to give up on LCL—and, what's more, GN has been paying for a substantial advertising campaign promoting LCL service.

In addition to handsome rate brochures, GN is using newspaper ads—and they're based strongly on price. One series says "Now—save even more on LCL via GN. Recent rate boosts by motor common carriers makes Great Northern's fast, coordinated truck-piggyback-rail service on LCL shipments a bigger bargain than ever." Another ad takes a similar slant: "Let GN cut your LCL freight costs. Look how much you can save on LCL shipments via Great Northern's coordinated truck, piggyback and freightcar



A VOTE FOR LIFT-ON, LIFT-OFF

C&EI's expanding TOFC operation in Chicago is strongly oriented toward overhead-crane loading-unloading. This monster unit was installed late last year.



THE OVERHEAD WAY FOR SANTA FE

Another new overhead crane has gone to work in Chicago—providing lift-on, lift-off piggyback terminal flexibility for Santa Fe at its Corwith Yard.

service." In all cases, GN lists rail LCL rates and truck rates—and does the subtraction to show what the savings will be, to the penny.

Has the campaign paid off, and is the service producing? Great Northern thinks so—and shippers have indicated they're satisfied, too.

● **L&N goes to TOFC.** L&N has, perhaps, gone even farther in turning LCL into a matter for piggyback to handle. Last year, L&N set up an intermodal LCL service with 27 motor carriers and, by the end of the year, 70% of the road's terminals were tied into the substituted-service network. Arrangements were also made to reopen LCL service into certain areas, via common-carrier trucking companies and connecting railroads.

As matters stand today, L&N LCL customers are in good shape. Through ACL, service can be provided into Georgia, Florida and the Carolinas; through a truck line, Indiana points are served; through connections with three major southwestern roads, the area from Kansas to Texas can be served; and a connection with Soo Line at Chicago, via C&EI, opens up the Northwest and Canada.

C&EI, meanwhile, has completely eliminated box-car LCL. All such small-shipment traffic goes TOFC. On southbound shipments, for example, C&EI will send a trailer for pick-up and, if the load is more than 5,000 pounds the trailer will usually then move directly to the road's Chicago ramp to be loaded on a solid piggyback train headed southeast or southwest (loads of under 5,000 pounds are handled by a contract drayman). Shipments to a major point, via C&EI and a connecting carrier, normally get there in one to three days, with another two days required for delivery to smaller communities. Says C&EI: "The shipper not only gets faster service—his charges are also probably less than what he might pay to an over-the-road carrier."

● **Will it work?** Can this piggyback effort in LCL bring any part of the small-shipment business back to the rails? Perhaps, and perhaps not. But box-car LCL was down to about 640,000 carloads last year, a drop of more than 26% from 1963 levels. And piggyback, obviously, is the only hope for recovery.

Less-carload business, however, is just one traffic area in which TOFC is showing new promise. And, to an increasing extent, commodity diversification is permitting piggyback operations to get the ideal—a two-way loaded haul.

On container moves between the Midwest and the West Coast, for ex-

ample, traffic is rather steadily building up. Burlington started its part of the operation with 12 containers, boosted ownership to 48 and now has ordered 100 more, along with 10 additional flat cars. Eastbound, the containers—originating in Hawaii and transported to the Coast by Matson—carry primarily canned pineapple. Westbound, from Chicago or Kansas City, the boxes are loaded with general merchandise, canned goods, beer. Thus far, the business is limited to a shuttle between the islands and the Midwest—but studies are being made on possible movements into the East.

All this reflects piggyback's steady development and growth — and it comes at a time when some observers were predicting a leveling off at some plateau where TOFC would stay, neither growing nor shrinking. It's true that the growth curve has flattened out for some few roads. But there's usually a cause that has nothing much to do with the inherent wisdom of TOFC itself—perhaps restrictive labor agreements with the Teamsters have cut into TOFC, particularly Plan I; perhaps a big business in automobile-piggyback has been converted into a big business in rack-car service. Both of these factors have had an effect in certain areas. But nobody has yet found a basic flaw in piggyback—and a spot check of large and small roads for 1964-65 shows not a single case of falling TOFC business.

● **TOFC: Up in the West.** In the West, the figures are impressive:

—Conventional piggyback on the Milwaukee Road scored a 20% increase in 1964, "continuing a pattern of remarkable growth." Milwaukee met the traffic challenge by acquiring 150 new trailers (mostly reefers) and by improving existing TOFC terminal facilities and building new ones at points not previously served directly.

—Missouri Pacific piggyback also exceeded the national rate-of-growth pattern. A good part of the success story was told by a new hotshot TOFC train from St. Louis to the Southwest, which went into service at the same time Mopac made Plan II½ rates effective. MP improved terminal facilities at two points (St. Louis and New Orleans) last year and plans to do the same at Fort Worth, Dallas, San Antonio, Houston and Little Rock in 1965.

—Northern Pacific checked in with a 17% increase in piggyback trailer-loadings and a 22% increase in tonnage handled in '64.

—Frisco reported, for 1964, another year in a string of 10 in which TOFC revenues have climbed. In 1963, piggyback brought in about $2.7 million; in '64, it added $3.4 million.

CONTAINER EXPRESS is a growing business—with the Canadian Pacific and other

—Southern Pacific had another increase in TOFC traffic. And SP went into two new piggyback ventures—movements of livestock in the Southwest and movement of mail and express on the West Coast.

—Illinois Central piggyback revenues last year climbed 14%, from $5.9 million in 1963 to $6.7 million in '64. IC also boosted its list of TOFC stations to 58, adding facilities at three points in Illinois, two in Indiana, two in Tennessee and one in Mississippi.

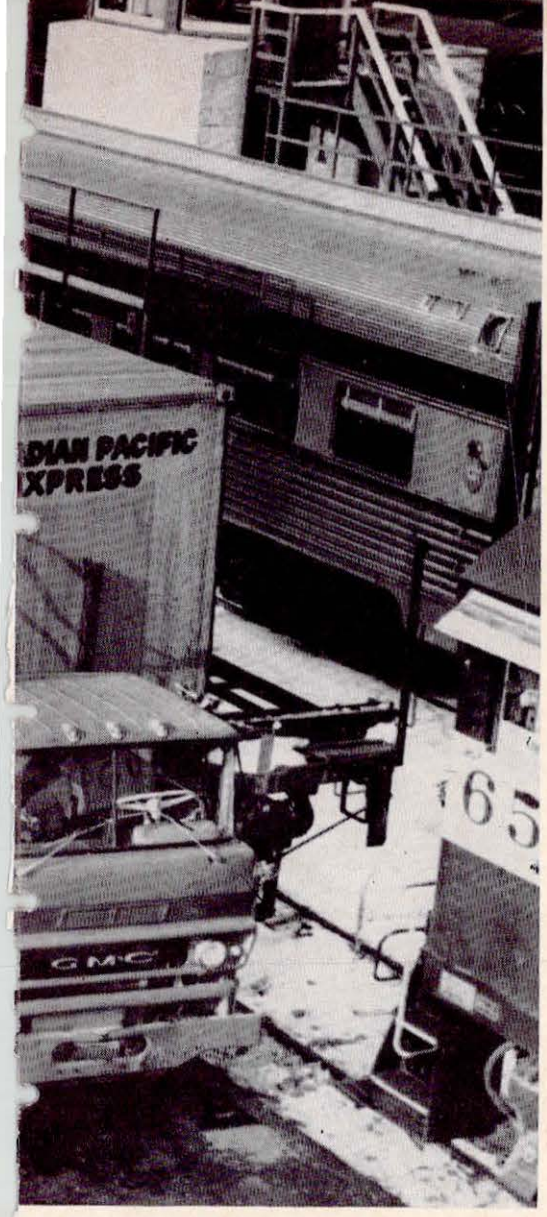
—Santa Fe called attention to a continued growth in piggyback, and described it as a "particularly favorable development, since a substantial part of the traffic formerly moved by competing modes of transportation." During '64, ATSF also built new TOFC facilities at Chicago and Dallas and, through an affiliate, added 559 new trailers for piggyback service.

—Soo Line posted a TOFC revenue gain from $1 million in '63 to $1.3 million last year, and credited "success and expansion of joint rates with motor carriers" with a big assist.

—Burlington had one of the smaller increases in 1964, handling 53,707 trailers, compared with 52,682 in the preceding year. But better showings are forecast, and CB&Q has backed up its confidence this year with orders for 10 cars, 100 insulated 24-foot containers for import-export trade, 100 mechanically refrigerated trailers for meat service and 45 open-top trailers. In addition, Burlington will spend about $1 million on expansion of trailer-container facilities at Cicero Yard, Chicago.

—Katy hasn't been a power in piggyback. But it's still showing increases, 9% in number of trailers handled and 8.7% in TOFC revenues in 1964, compared with '63.

● **TOFC keeps going.** In the East and Southeast, the story was much the same. And it was one of growth:



roads, planning for expansion of the service.

—Louisville & Nashville recorded one of the largest percentage increases in the industry. In 1964, L&N handled more than 65,000 trailers in TOFC service, a gain of about 35% from the preceding year's total. Coming into 1965, the road had 35 permanent ramp facilities, with five more under construction, and also maintained five portable ramps for use at points where piggyback movements are of a temporary nature.

—Pennsylvania, one of the real pioneers in piggyback, showed increases that looked small by comparison: 6.2% in revenues, 5.9% in number, of trailers handled. But those "small" increases brought PRR TrucTrain revenues to $35.5 million and jacked trailerloads up to 224,151. In addition, PRR last year enlarged three piggyback terminals and began major expansion of its two major TrucTrain facilities, at Kearny, N.J., and Chicago. At Kearny, the project involved an increase in storage space to accommodate another 100 trailers, installation of washing facilities for reefer trailers and installation of another gantry crane to speed loading-unloading operations. At Chicago, the storage area was to be tripled in size and loading-unloading capacity was to be boosted through construction of new tracks and installation of additional overhead cranes.

—New York Central swung into '65 with a continuing emphasis on Flexi-Van speed, and this month announced another speed-up, which cuts a day off schedules from the eastern seaboard to the Southwest. NYC SV-5, a solid container train, makes the run on a 22-hour schedule and hits St. Louis in the early-morning hours to make connections with roads serving the Southwest.

—Chesapeake & Ohio-Baltimore & Ohio both posted substantial TOFC gains in '64. TOFC revenues on C&O topped 1963 levels by 42%, and B&O's take from piggyback climbed $4 million to $15 million, making TOFC the biggest single factor in the road's $9.2-million increase in revenues from merchandise traffic.

—Reading enjoyed a 24% increase in number of trailers handled and, in addition, developed "a new, short-haul TOFC service between Reading terminals, designed as part of the total marketing concept of distribution to offer inducements to traffic now being transported over the highways to return to Reading rails."

—Western Maryland, in '64, stressed improvement in plant and equipment, including expansion of TOFC facilities, clearance improvement and acquisition of new trailers.

● **How about '65?** North, East, South, West, most roads can probably look for piggyback to show about the same progress in 1965 as it did in '64. As AAR President Daniel P. Loomis noted recently, "The final impact of piggyback is nowhere in sight."

But it's likely, too, that '65 will be a year of consolidation, of improving existing services and introducing a few new ones. Schedules will be speeded up—thanks in part to the development by locomotive builders and ready acceptance by railroads of higher-horsepower motive power. Service will be improved and expanded, thanks to some extent to the increasing number of Plan V arrangements being made between railroads and truck lines. Occasionally piggyback equipment shortages should be eased, because of expansion of the car and trailer fleets and because of tighter car- and trailer-control methods coming into play.

How about equipment? Chances are that suppliers and railroads will be going with what they have for most of the year. But there's also a good chance that major suppliers will be putting new TOFC equipment on the display shelf later this year, or early in 1966. And, based on current demand, based on potential, based on guarded comments regarding new developments they've been trying out, chances are railroads—or their car-supplier, Trailer Train—will be buying.

● **Demand: Still high.** Trailer manufacturers should also be wearing smiles. Demand almost assures that railroads and leasing organizations such as XTRA or Berman Leasing will be in the market heavily. And, just as the Pullman-Standard and ACF and General American and Bethlehem Steel and Greenville Steel Car flat cars have passed the test of TOFC experience, so have the products of the major trailer manufacturers — among them Trailmobile, Fruehauf, Strick, Dorsey, Great Dane, Gindy, Highway Trailer, Enterprise-Black Diamond.

Just one example from the supply field: Pullman-Standard Division of Pullman Inc., reported the highest dollar value of sales in its history last year —and Trailmobile Division checked in with '64 deliveries at an all-time high. Piggyback had a lot to do with both records, as it did with the brightening sales pictures of other carbuilders and trailer-container manufacturers.

In a major way, however, the 1964-65 period has not shaped up merely as a period of quickening growth for piggyback, its operators and its suppliers. It's also a period for what might be called reminiscing—because many of the major roads in the trailer-container-on-flat-car business are winding up a decade of phenomenal performance. Some did it in '64, some are holding the celebrations this year.

● **From a small start:** Pennsylvania remembers its modest entry into TOFC —six trailers tied down to flat cars in a fast New York-Chicago train in 1954. PRR hauled just 1,330 trailers in '54 —through 1964 it had carried more than a million, and last year alone added more than 224,000 to the total. Revenues are up to a point where they're accounting for 5% or better of the road's total freight revenue. And expansion is continuing, in equipment, terminals, services. Just last year, for instance, Pennsylvania worked out interchange agreements with a number of ship lines serving Latin American nations, and trailers or containers now run through, rail-to-ship, direct.

Frisco, another pioneer, digs into the piggyback birthday cake this year—and Frisco started even smaller. It was April 13, 1955, that Frisco Transpor-

Healthy, internal controversy likely to continue

tation Co. trailer No. 1257 was loaded onto a flat car—and that one trailer started something that last year amounted to a 20,000-carload business. In the beginning, Frisco operated with just two wooden ramps, at St. Louis and Dallas. Now it has 42 TOFC loading-unloading facilities in nine states.

● **A sharp curve—upward.** Still a third major TOFC operator, Louisville & Nashville, is also watching piggyback pass the 10-year mark with a growth curve that's still going up sharply. Like the others, L&N started out on a modest scale in '55, with 30 trailers, 16 converted flat cars and service linking only three cities, Louisville, Birmingham and New Orleans. That first year gave little indication of what was to come. Only about 500 trailers took to the rails—and actually, L&N piggyback didn't really begin to take off until about five years ago. And then it went like a rocket. One of L&N's favorite charts is the one that compares L&N TOFC growth with the industry average since '59. And, while the Class I average has gone up by well over 100%, L&N's line shoots up to a 1,300% 1959-1964 increase.

Illinois Central, too, has reason to look back as it looks ahead. IC got into TOFC in '55, and quickly found the new service generating new business. Revenues were about $250,000 in the first full year of piggyback operation—and have since climbed close to the $7-million mark. Says IC: "When piggyback first came upon the scene more than a decade ago, it immediately generated excitement. . . . Today, this technique of moving shipments is still growing, still improving."

● **TOFC's side-effects.** The excitement, growth and improvement, from all indications, have spilled over into railroad operations on a broad scale. In short, piggyback has made a vital contribution to the improving position of the industry—directly, through the building of new business and, indirectly, through a sort of stimulation of thinking in freight traffic and operations generally.

Over the decade, 1955-64, total rail freight carloadings dropped from 37.6 million to 29.4 million, while revenue ton-miles showed a slight gain, from 623.6 billion in 1955 to 659.3 billion last year. Piggyback, during the same period, climbed from well under 200,000 carloads the first year to close to 900,000 in '64—and it should hit the million mark in '65.

Last year alone, TOFC showed an increase of about 93,000 carloads, or 11.6%, from 1963 levels—and it accounted for about 3% of total carloadings.

As for the indirect benefits of TOFC—the thinking it has stimulated—two instances come to mind. The most obvious, of course, involves the automobile business and the success railroads have had in recapturing new-car and truck traffic. Piggyback touched it off, when a few roads—realizing that the industry held less than 10% of a business it once dominated—began moving auto-driveaway trailers on TOFC equipment. The idea worked, the business started coming back—and it wasn't long before a railroad-shipper-carbuilder team came up with the logical progression from piggyback: The bi- and tri-level auto-rack cars which have jacked the railroads' share of motor-vehicle movement back up close to 40% of the market. Some few roads are still piggybacking new cars on driveaway trailers—but the racks have taken over most of the business.

In less obvious fashion, the theory of piggyback—or containerization—also got involved in development of the new breed of auto-parts box cars, the 60-foot high-density and 89-foot low-density units. One of the first experimental giant cars was actually a container—and, while the industry stayed with more conventional car-construction methods for the new auto-parts fleet, the effort was made to do a takeoff from piggyback-containerization methods.

● **TOFC and its debates.** With all the activity in piggyback, with the thinking it stimulates, with all the influences bearing on TOFC operations, it's not surprising that the whole subject can generate a sizeable amount of polite controversy.

One controversy, stripped down to its essentials, is over the question of whether there should be controversy—whether it's now time for a more-or-less common, industry-wide pattern or whether piggyback is still in the stage where a certain amount of go-it-alone daring is called for. If the National Railroad Piggyback Association works the way its planners hope it will, there's almost sure to be greater degrees of uniformity resulting in certain areas. At the same time, however, few of the major piggyback operators show much inclination to ease up on the attitude of experimentation that was largely responsible for the first decade's growth. It may be that more accurate costing and better marketing policies will have a beneficial effect on piggyback rate-making and traffic-building efforts—by putting a damper on any lingering TOFC-business-at-any-price ideas. But in the areas of equipment development and commodity diversification, in particular, the spirit of try-and-see will remain very much alive.

● **What about the wheels?** There will also be continuing debate on the trailer-vs-container issue—with containerization probably showing slow but steady gains. Aside from the large-scale operations of Southern and New York Central, containerization has found a place mostly in import-export traffic and in movement of mail and express. But there's little doubt that the wheelless-box business will expand—western roads, for example, are finding refrigerated containers well-suited to movement of meat and packing-house products. And containerization advocates can be counted on to keep stressing the advantages of leaving the wheels behind. Southern, in particular, would like to see more roads move into container-on-flat-car operations.

Still another area of debate concerns the best ways to sell piggyback. Should the regular traffic sales force handle TOFC? Should a special organization do the job? Should it be a combination of general salesmen aided by piggyback specialists at the headquarters office or scattered over the system? And, if a special sales unit is set up for piggyback, should a road plan to keep it that way or work toward a gradual re-integration with the regular traffic sales organization?

● **How many plans?** Finally, among piggyback's controversial topics, there's the matter of the five plans (or six or seven, depending upon how Plan II½ and the various LCL plans are considered). Some railroads and a number of freight forwarders still look with something akin to horror on Plan I, and forwarders aren't any fonder of Plan V. Certain railroad traffic men think Plans III and IV could do with a bit of straightening-up. But, at present, it would appear that piggyback will continue on the course charted over the past 10 years—with five basic plans and a few modifications.

● **A word for tomorrow:** That's how the bustling piggyback business shapes up at near the mid-point of '65. Ten years ago, it was nothing. Today, it's the biggest growth area in railroading. And tomorrow—well, with a little bit of luck, railroads will have a new base on which to build piggyback come next Jan. 1. Starting with 1966, the slogan might be "up from a million." ■

Some economics for railroad men on the high costs of not using aluminum cars

Get the facts from Reynolds Aluminum. Turn the page.

Operating costs... maintenance... scrap value...

How these three factors make aluminum cars better investments than steel cars for hauling coal and other heavy bulk commodities:

An aluminum body gondola car with a cargo capacity of 109 tons costs about $4,500 more than a comparable steel car—with a 100-ton capacity.

This added nine tons of capacity by itself may justify the extra cost of an aluminum car; and under certain conditions, aluminum cars not only justify their first cost, but also give their owners additional long-term financial benefits that steel cars cannot match.

Where aluminum cars are at their best

In the past six years, Reynolds has helped to design and has supplied the aluminum for over 2,900 aluminum body railroad cars—more than any other aluminum producer. Reynolds economists, working with railroads and car-owning shippers, have analyzed the performance of these cars. And they find that aluminum open hopper and gondola cars offer the greatest profits to their owners when:

1. they haul heavy bulk commodities in assigned or captive service . . . or
2. when they're in *high utilization* service . . . or
3. when their cargoes could damage or be contaminated by steel.

One major railroad, for example, uses its aluminum gondolas most successfully in a unitized train hauling coal for a utility customer. The cars make a daily run between the coal mine and a steam generating plant.

To illustrate the operating cost savings that these cars provide, assume a hypothetical case similar to this utility coal run. Assume the utility plant needs 1,700,000 tons per year. The haul is 325 miles one way, and the train makes three round trips per week.

A 100-car unitized aluminum-car train would meet these requirements. With the smaller-capacity steel gondolas, the train would need 109 cars to carry the same amount of coal.

Less ton-mileage, lower operating costs

Because it is heavier, the steel-car train would travel more ton-miles per year than the aluminum-car train. Specifically, in this case, the steel-car train would record 900,800,000 ton-miles per year against 780,800,000 ton-miles for the aluminum train.

Ton-mileage, of course, is directly related to operating costs. With less ton-mileage to haul a given load, an aluminum car will save on train fuel, locomotive maintenance, locomotive lubrication, and on maintenance of way.

Using a conservative figure of $.768 per thousand ton-miles for these operating costs, the aluminum train in

the example would cost $599,700 per year to operate—vs. $691,800 per year for the steel-car train. That's an annual savings of $92,100 per year in "hard core" operating costs for the 100-car aluminum train.

No protective coatings needed

Low maintenance is one of the most important advantages aluminum cars give their owners. Aluminum won't rust, so the cars need no protective painting. Aluminum resists corrosion from many materials that damage other metals, so coatings, careful cleaning and frequent replacements are unnecessary.

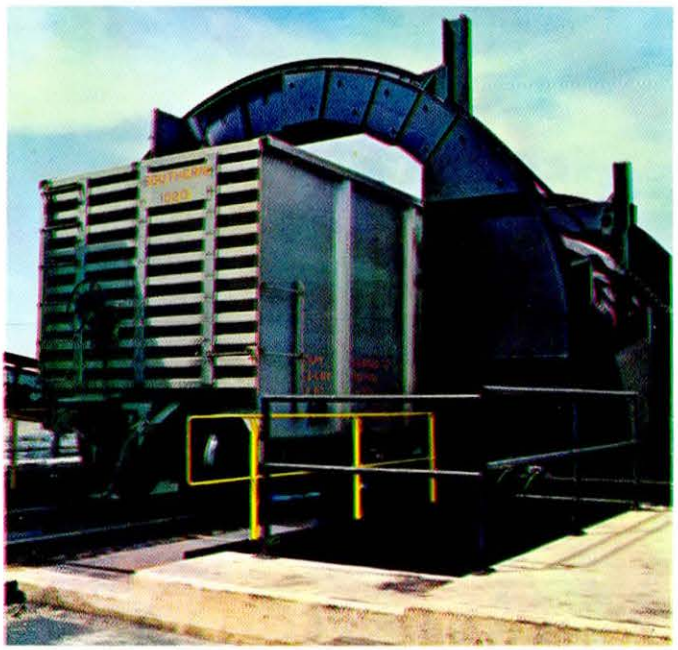
However, you don't have to consider these costs in order to prove that aluminum cars cut maintenance. Over their service life the lighter weight aluminum cars will show substantial savings by reducing wear on running gear.

Although service records for aluminum cars over relatively long periods are limited, several aluminum-car trains have rolled up long mileages in a short time. One train in coal service about five years, has covered as many ton-miles in its high utilization service as the ordinary coal car covers in 30 years or more. Its ton-mileage record is about seven times the national average.

How costs compare

With this background, Reynolds economists have estimated comparable fleet car maintenance costs for coal cars over a 20 year period as follows:

	Aluminum Cars	Steel Cars
Total maintenance at 20 years	$23,184	$27,484



The major saving with aluminum is due to the fact that the average steel car body must be replaced at least once during a 20 year period, while experience based on ton-mile service indicates this is not necessary for aluminum cars. Aluminum coal mine cars also proved this point with more than 18 years of actual service.

When these maintenance costs are figured on a fleet basis, aluminum cars show a marked advantage.

In the example mentioned earlier, the maintenance for the 100-car aluminum train would be $23,184 times 100, or $2,318,400 for 20 years. For the 109-car steel-car train, the cost would be $27,484 times 109 or $2,995,756 in the same time.

Big returns from scrap

Another major financial factor to be considered with aluminum cars is scrap value. At the end of its economic life, a typical aluminum car will yield about 15,000 lbs. of aluminum scrap. A conservative estimate of its net value would be about $2,600—compared to a similar steel car scrap yield of about $840.

More details on equipment made with Reynolds Aluminum . . . see next page.

The figures on the previous pages show how aluminum open hoppers and gondolas save money for their owners; other types of aluminum cars offer benefits like these, too. Covered hopper and tank cars also cost less to operate and maintain when they're made with aluminum, and their scrap recovery value gives them yet another advantage over steel cars.

Aluminum's light weight, strength, and corrosion-resistance pay important dividends in car components and special freight equipment, as well as in rolling stock . . . as proven daily by aluminum car doors, crossmembers, and bulkheads. In fact, the case for aluminum cars and equipment is a matter of daily record, in cars of all types, hauling a variety of cargoes on railroads all across the country.

Let a Reynolds railroad specialist show you how aluminum cars will give you long-term savings that no other equipment can match. Contact your local Reynolds office for details, or write *Reynolds Metals Company, P.O. Box 2346-TX, Richmond, Virginia 23218.*

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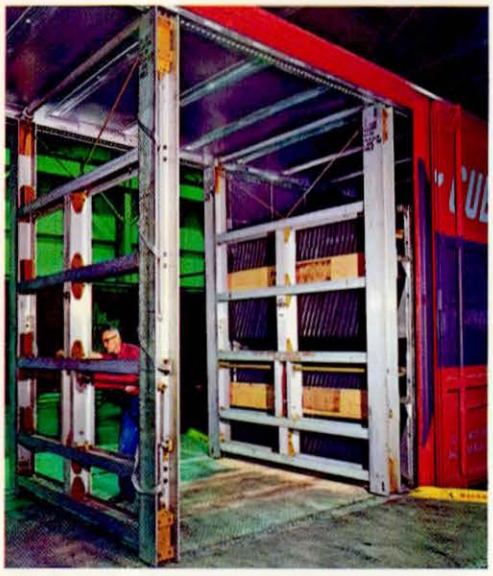

Strong, lightweight bulkheads of Reynolds Aluminum protect bulky freight against damage.

Covered hopper cars made with Reynolds Aluminum, in daily service on major railroads.

Tough Reynolds Aluminum helps tank cars serve longer with corrosive cargoes.

With present requirements and likely future requirements in mind, are there any specific equipment or service innovations or improvements which would tend to increase your utilization of piggyback (or to get your traffic to moving by TOFC in the event it does not move that way now)?

More use likely	*72%*
No added use likely	*28%*

Changes which might lead to increased use:

Extension of existing rate or service patterns, or establishment of new patterns	*38%*
More TOFC equipment and/or new types of equipment	*28%*
More reliable service	*11%*
Miscellaneous	*23%*

How shippers would promote TOFC

Broader coverage, some changes in rate and service patterns, better equipment supply, could, they say, lead to greater use.

TOFC's growth—uninterrupted since the service was first inaugurated a little over a decade ago—is likely to continue, in the collective opinion of shippers answering this month's Traffic Poll. But many of those same shippers think it would grow faster, and go farther, if the railroads would effect certain changes, particularly in rate or service patterns and in quantity or quality of equipment.

As the tabulated replies above clearly indicate, about three-quarters of all Poll respondents say they expect to use more piggyback service in future than they do now. Nearly all of the remaining quarter, who foresee no increase in its use, explain that their traffic (e.g., grain, boilers, bulk fertilizers) is simply not suited to TOFC movement, save perhaps in rare instances.

On the other hand, predictions of increased future use of TOFC do not indicate complete satisfaction on the part of the majority.

● **Wider coverage.** About two-fifths of that majority suggest that they would be likely to use more piggyback if existing services or rates were extended geographically, or changed in some other respects.

Typical of such replies is that of R. J. Tyler, general traffic manager, Tube Turns, Louisville, Ky.: "TOFC should be extended to all territories where there is need for service improvement."

"Additional geographical coverage" is called for by C. H. Richardson, traffic manager, Nicholson File Co., East Providence, R. I. From the opposite end of the country, R. G. Scearce, TM, Diamond Fruit Growers, Inc., Hood River, Ore., expresses the opinion that "carriers have been slow in establishing service from Hood River, and publishing rates that are applicable to desirable destinations."

C. P. Greeley, vice president, National Distillers & Chemical Corp., New York, thinks "service should be expanded to areas not presently served." P. T. Catalano, traffic and distribution manager, Steelcase, Inc., Grand Rapids, Mich., would like to see "expanded Plan III single trailer, and more Plan II½, service—particularly to the West and Southwest."

"A broad rate structure throughout the country, similar to that available within Southern Territory on the various plans" is suggested by J. N. Lind, director of transportation, Armco Steel Corp., Middletown, Ohio, as something which would increase his company's use of TOFC service.

● **Rate or service patterns.** Broader coverage, however, is not necessarily a matter of geography. It can, some respondents indicate, be applied also to patterns of rates or of service.

Greeley, for example, suggests "through bills of lading and coordination of equipment with ocean carriers to permit origin-to-destination export and import traffic."

P. E. Gartner, manager, corporate transportation and warehousing, Libby, McNeill & Libby, Chicago, thinks establishment of "through rates for storage-in-transit—rail into the transit station, piggyback out—would help keep traffic on the rails from distribution centers for those customers preferring truck delivery." Somewhat similarly, J. H. Hayghe, traffic director, American Tobacco Co., suggests "stopping in transit of one trailer of a two-trailer shipment, with the rate to the stop-off point (plus a stop charge) applicable to the stop-off trailer."

If piggyback rates could be reduced to carload rate levels it would serve the double purpose of "relieving our chronic car shortage" and increasing TOFC business, in the opinion of A. V. Krone, GTM, United Carbon Co., Houston. And E. Hasenritter, director of purchases and transportation, Certain-teed Products Corp., Ardmore, Pa., thinks piggyback rates "should be sufficiently below over-the-road truck rates to represent a saving, since service is rarely equal to over-the-road service." He would also like to see some liberalization of detention rules.

R. L. Sackett, traffic manager, Cleveland Cap Screw Co., Cleveland, believes railroads should use "initiative in Plan II piggyback rates, rather than copying verbatim the motor carrier rate schedules." From a service standpoint, he suggests "improvement in origin handling of pick-up requests and destination delivery." Richardson, quoted above, would like to see clearer definitions "of applicable tariffs and rules on Plan V shipments, and additional information as to Plan III."

A specific "new service" idea comes from R. R. Rabon, TM, Campbell Taggart Associated Bakeries, Dallas: "An arrangement the carriers may wish to consider is using TOFC service in retrieving some of the exempt commodities that are presently moving via exempt, private, contract and common carrier trucks, e.g., powered milk and powdered buttermilk. Considering the

Specialized trailers suggested by some shippers

baking industry as a whole, there is tremendous tonnage in these commodities alone. With some modification in minimum rates that would produce attractive revenues, maybe TOFC could be used effectively to meet truck competition."

● **Greater reliability.** Other Poll replies suggest, however, that greater reliability for services already established is the prime requisite for increased shipper use of TOFC.

"The service could be made more attractive if we could be sure of on-time deliveries," says E. F. Majeske, GTM, Swift & Co., Chicago. "Most of our traffic from the West to the East requires interchange at Chicago, St. Louis or Peoria. Too often connections are missed, and frequently carriers are guilty of not giving us timely notification so other arrangements can be made to deliver the shipment on schedule. All our shipments are planned to meet customer requirements based on normal rail schedules, and must be delivered in accordance therewith."

Somewhat similar comments come from J. L. Bergen, TM, Uncle Ben's, Inc., Houston, and J. E. Laedlein, transportation manager, Wyandotte Chemicals Corp., Wyandotte, Mich. Bergen suggests "a definite door-to-door schedule, with a 'watcher' service, including automatic wire notification to shipper (with reasons) if a shipment is delayed off schedule (or if the consignee should refuse to accept)."

In most areas, Laedlein finds, "TOFC compares favorably with truck, but in some areas service is very erratic. In spite of favorable rates we cannot satisfy customer needs, and must ship by truck." He mentions, specifically, that "some New England points could be improved, service-wise." He does, however, report that, "in general we are satisfied, and have been gradually increasing our TOFC movements."

"Better service between terminals, and more prompt movement after trains reach terminals" are advocated by E. E. Allison, director of traffic, Anchor Hocking Glass Corp., Lancaster, Ohio.

● **Equipment needs.** More equipment—and particularly more specialized equipment—appears to be the second big factor that might induce shippers to use more TOFC.

As to quantity: "A real effort must be made to overcome equipment shortages," says O. A. DeCroce, general manager, General Transportation Department, Armstrong Cork Co., Lancaster, Pa. "Considerable progress has been achieved in TOFC services, and opportunities for the future are unlimited. However, continued growth cannot be expected in the face of frequent shortages of both trailers and flat cars. Delays of three and four days in placing trailers for loading are not uncommon. Similarly, shortage of flat cars at loading ramps causes further delays."

"In too many instances, dry freight trailers are in short supply," agrees D. H. Wetzel, GTM, American Olean Tile Co., Lansdale, Pa. In general, he adds, "we find TOFC service good from an over-all standpoint"—but he agrees with some of his colleagues that "we need a liberalization of the stop-off rule to make it more flexible."

Hasenritter and Lind, both quoted above, see a need for more flat-bed trailers, especially in 40-foot lengths. Lind calls, additionally, for more open-top vehicles. Greeley suggests "elimination of antiquated equipment."

'Covered hoppers' for TOFC?

Specialized trailers appear to be of interest to a fair number of traffic men. Bergen, for example, suggests a van "which would carry bulk cargo, such as loose grain, with loading and unloading hatches and/or spouts"—something presumably comparable to covered hopper cars.

"Growth of piggyback could be given added impetus," in the opinion of J. P. Taboika, GTM, Cowles Chemical Co., Cleveland, if railroads would start handling bulk tank trucks of both dry and liquid commodities." Cowles, says Taboika, has utilized TOFC at an increasing rate since its inception. But "bulk tank truck shipments, particularly of dry commodities, is the fastest growing mode of transportation today. Putting them on rails should make it more economical than ever to ship via bulk tank truck, since it would be much cheaper to return an empty bulk tank truck via rail than by deadheading it back over the road. We look forward to the day when bulk tank trucks go via piggyback."

Catalano would like to see more trailers with tie-down or "damage-free" loading equipment—and DeCroce agrees. "Another area deserving attention," the latter writes, "would substantially reduce or eliminate damage, and provide much safer transportation. This contemplates equipping highway trailers with horizontal rails and cross members in the same manner as damage-preventing cars."

Majeske comments that "some carriers still tender trailers that do not have the necessary complement of hooks and racks, which are necessary in transportation of meat and meat products."

● **60-40 rule.** The 60-40 mixing rule on Plan III TOFC, which was a sore point with a good many shippers for a long time, drew surprisingly little mention.

But F. H. Watson, Jr., assistant traffic manager, Sterling Drug, Inc., New York, does say, bluntly, "get rid of it." And H. B. Brown, general traffic manager, Mobiloil Co., New York thinks "railroads should take maximum advantage of their present low-cost Plan III rate structure by offering shippers modified Plan III rates, eliminating the present mixture provisions and providing pick-up and/or delivery service, or both, as required."

"The carriers' position on Plan III concealed damage claims is driving business away from that form of TOFC," according to one unsigned Poll return.

● **Other suggestions.** Individual comments in the "miscellaneous" category include the remarks of W. K. Cabot, GTM, Johnson & Johnson, New Brunswick, N. J.: "Expansion in Plan V is dependent on establishment of through rates at lower levels than the through all-truck rates."

"Improvement in the know-how for handling perishable commodities in refrigerated trailers is one of the most important factors which might influence our further use of TOFC," says R. A. Propf, general transportation manager, Geo. A. Hormel & Co., Austin, Minn. "We believe railroads are placing too much dependence on the automatic features of refrigerated trailers. These do not always do what they are supposed to. In other words, handling perishables is still an exacting job, which can only be entrusted to experienced personnel who understand the nature of the commodity, and who have a thorough understanding of the equipment it is moving in."

Lind, already quoted on other points, suggests consideration of overflow or balance of orders that involve single trailers.

And he also points out that the present practice of billing various charges is not satisfactory. "The freight bill is often received separate from trailer lease charges, and as much as three weeks apart. Trailer detention charges are seldom identifiable with the order, commodity or shipping origin." ■

gb

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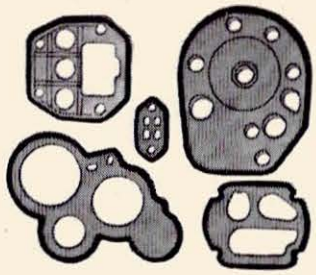

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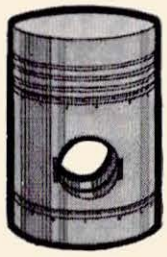
TRAIN-LINE INSULATION—For steam train-line piping and exposed water pipes beneath car floor. Ultralite glass fiber insulation, cemented to waterproofed heavy asbestos cloth, is 2 inches thick. Provides superior thermal efficiency.



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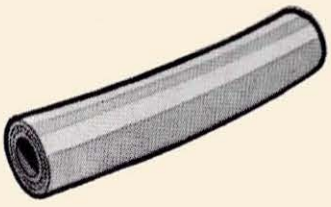

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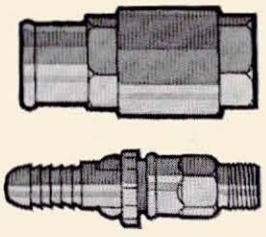

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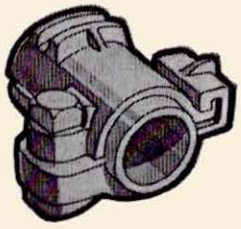
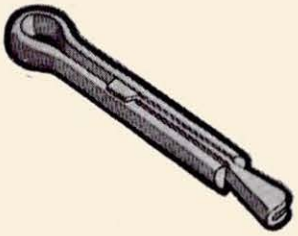


BRAKE PIPE CLAMPS—G-B Standard Bolt-type clamp helps relieve vibration and longitudinal movement of brake pipe. Serrated bearing area of clamp virtually eliminates wear and fracture at pipe hole.



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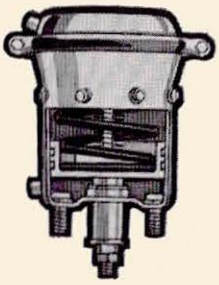

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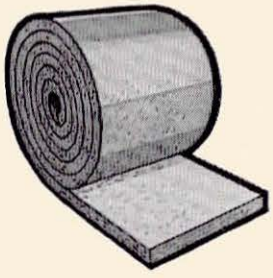

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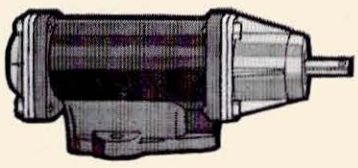

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RETARDER OPERATOR, in tower office at the dual hump in CN Toronto yard, checks his switch list during a humping operation.

New yard will save millions for CN

No 'bargain-basement' buy, the facility is expected to pay off handsomely over the long term.

Canadian National's new automatic classification yard at Toronto is big and colorful. For bigness, the 1,000-acre yard can classify 5,000 cars every 24 hours. With its 75 miles of access line, the Toronto yard project carries a $75-million price tag. For color, the visitor will see control towers and talk-back speakers painted white, red, blue, green, yellow, and black. In the locomotive and car maintenance areas, the color is purple. Even the big vertical steel roller doors of the car and locomotive shops are painted purple.

Color coding, says a CN spokesman, makes it easy for personnel to associate a control tower with its function and immediately identify a talk-back speaker with its source of control. Green, for example, is the color for the west departure yard.

- **Money well spent.** At opening day ceremonies, CN Chairman Donald Gordon said the railroad would have failed in its duty to customers if it put in a "bargain-basement" yard that would become obsolete by 1966. The new yard, he said, is a long-term investment that will save many millions of dollars. J. W. Pickersgill, Canada's Minister of Transport, said the yard is "an example of good use of the taxpayers' money."

The new yard is about 15 miles north of downtown Toronto and CN yards on the lakefront. Toronto is on the north shore of Lake Ontario. CN lines radiate like spokes of a wheel with its hub on the lakefront. An access line, therefore, had to be constructed to reach the new yard. This line forms a "great circle" route around the city. It connects the new yard with the mainline west toward Hamilton, with lines to Buffalo and Chicago. On the east, the access line connects with the mainline to Ottawa and Montreal.

- **Ten yards in one.** The yard ac-

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AT THE CREST OF THE HUMP where a pin puller uncouples car to let it roll free. Car coasts to right spot on track with assists from remote-controlled switches and computer-assisted operators.

tually consists of several yards, each with a specific function. There are two hump yards. All cars are put over the dual-hump of the main yard with its 67 class tracks. The main sort here is for through traffic to U.S. and other Canadian points. One group of six classification tracks in the main yard is for local or Toronto cars. These cars are then pushed over another hump into a 50-track local classification yard to put them in order for spotting at industry sidings.

Trains entering the yard are directed to a 20-track receiving yard. For departures, other than to destinations in the Toronto area, trains are made up in a 6-track east departure yard or a 7-track west yard. Bad order cars and dirty cars are moved to a 20-track yard in the car maintenance area. After repairing or cleaning, cars are moved to a 21-track holding yard. Three other yards include the service area for diesel locomotives, a 22-track yard for storage of surplus cars, and 6 short stub end tracks for storage of maintenance-of-way equipment.

● **Keeping everyone informed.** To help the yard staff work together, extensive communications systems have been installed. There are seven separate control areas, each with its own internal communications and facilities for communicating with the other control areas and with a master control in the administration building. Seven radio systems, 86 talk-back speakers, 65 portable radios, 34 Teletype machines, and a private automatic exchange and dial telephone system comprise the various communications facilities.

Personnel in seven control towers and three hump cabins can maintain direct communications with supervisors, car inspectors and car checkers. Paper work, waybills and other train data are handled by punch card and tabulating equipment for producing records on paper tapes, punch cards and teleprinter page copies.

Switch engine crews receive instructions by two-way radio. Hump engines assigned to the main and local class yards are also equipped with cab signals.

● **Three cars a minute.** At full capacity, Toronto yard's humps can handle three cars per minute. This is accomplished by using an analog computer that provides instantaneous solutions for the required release speeds of freight cars from the retarders.

The computer, part of the Class-Matic control system made by General Railway Signal Co., must solve a mathematical equation taking into account several factors. For example, the computer must deal with the car's weight, tangent and curve track rollability, speed approaching retarders, length of cut, class track destination, and weather conditions such as heat in summer and cold in winter. Included in the system is the automatic alignment of switches so that a car is routed to the proper class track once the hump foreman has pressed a numbered button for the track destination.

A new feature of this system is the use of ferrite cores and other solid-state elements for the automatic switching equipment and the automatic distance-to-go units. Automatic distance-to-go provides the analog computer with information about the distance remaining in class tracks for holding cars. Thus, as tracks fill up, this factor is taken into account so that the group retarder will accordingly "squeeze down" on a car so it will "soft-touch" couple after traveling only a few car lengths.

● **Access line under CTC.** Train dispatchers at the yard have centralized traffic control of power switches and signals on the access line, as well as the main line west to Hamilton. The solid-state control system, furnished by Union Switch & Signal Division of WABCO, is capable of handling 400 control functions per second. While electronically scanning 38 field stations, the system is capable of providing the dispatcher with 900 indications in a five-second interval.

Traffic over the approximately 100 miles of line totals 180 trains every 24 hours. Two Traffic Control Center consoles are in the yard's administration building. The track model diagram is on a 36-foot panel mounted on legs in front of the consoles. Lights on the panel indicate routes lined, train locations, switch positions and signal indications (proceed or stop).

Pushbutton route control is employed. The dispatcher presses a button at the location where a train is to

enter an interlocking or controlled section. He presses another button at the exit location. The equipment automatically selects the preferred route, lining switches and clearing signals. The fail-safe principle has been built into the equipment so that signals will clear only for routes compatible with safe movement.

● **Blue-flagging for safety.** One of the safety features of the new yard is the employment of electrically-interlocked blue-flagging systems for the protection of car inspectors. For example, receiving yard switches are remotely controlled by a switch tender. However, after an inbound train has been yarded, the switch tender will position the switch away from that track. The inspection control officer, in charge of car inspectors, will insert and turn a key in a console on his desk. This will electrically lock the switch so that it cannot be operated to provide a route into the train being inspected.

When a train arrives in the receiving yard, a closely coordinated team of maintenance and servicing men goes to work. Inspectors who have been dropped off along the train by radio-dispatched vehicles, check the cars' mechanical condition and arrange, by radio, for those cars requiring minor work to be repaired right in the train by special maintenance crews. Information on cars that must be moved to repair tracks is radioed to inspection control. At the same time, other crews are icing cars and servicing and fueling heaters or mechanical refrigeration units. On completion of this work, about one hour after arrival, yardmaster control is informed so the train can then be humped.

Cars requiring heavier repairs than could be undertaken in the receiving yard are moved to the 80,000-square-foot car-maintenance building. Here, crews using the latest in maintenance equipment quickly return the cars to a condition satisfactory to railway mechanical requirements and to customer requirements. A feature of the shop is the spot repair section where cars requiring fairly light repairs are processed on an assembly line basis at the rate of three an hour. In all, almost 200 cars per day can be repaired in the shop.

Adjacent to the repair area is the car-cleaning plant. Mammoth vacuum cleaners, high pressure water and steam systems, and an array of smaller machines, sweep, vacuum, wash, deodorize and disinfect freight cars before they are distributed for loading by CN's customers. The plant has a capacity of 300 cars per day.

● **Spot repair for diesels.** At the motive power building, diesel locomotives are inspected, sanded, watered, oiled and fueled and repairs are undertaken. The assembly line approach has been taken to minimize out of service time when making repairs. Diesels that have been serviced are placed in a unique herringbone storage yard designed to insure rapid availability on a random access basis.

To further shorten time out of service, a fueling and servicing truck is used to fuel locomotive units throughout the yard so that time lost in traveling to the shop can be eliminated. The truck is used primarily for serving hump and other yard engines.

● **Industrial development.** Not only does the new yard provide for faster and more efficient handling of freight in the Toronto terminal area, but it will free approximately 185 acres of former yards for industrial development. Such development has already started. Eight new manufacturing plants have been constructed or are under construction in areas adjacent to the new yard. CN has about 250 acres nearby which are available for industrial use. A 600-acre industrial park is planned for another area near the new yard. ■

CN's new yard at a glance

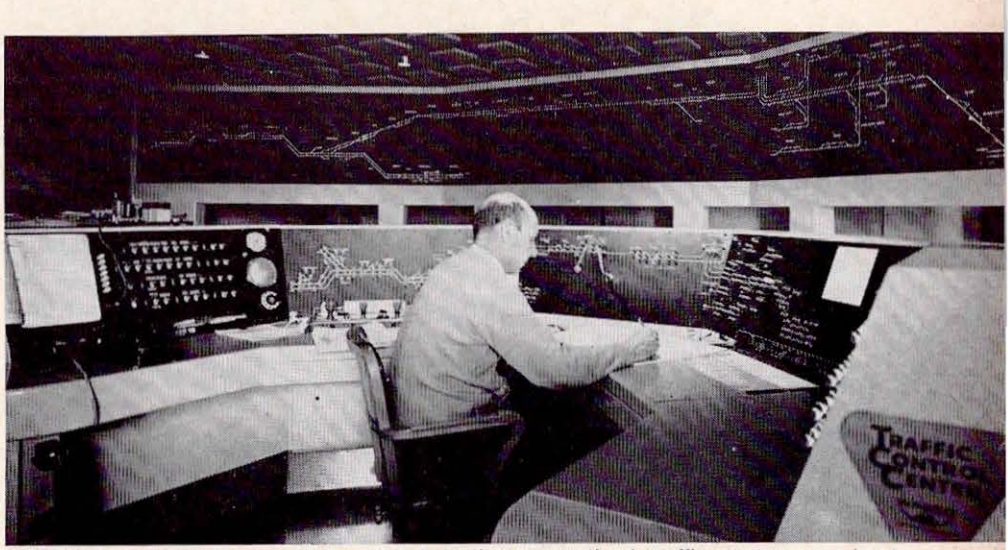
YARD STATISTICS:

Size	1,000 acres
Trackage	158 miles
Classification tracks	67 main; 50 local
Track switches	561
Daily classification	5,000 cars
Standing capacity	11,000 cars
Buildings: control towers	7
control cabins	4
major buildings	3
minor buildings	12
Major yard bridges	6
Track ties	500,000
Rail	30,000 tons
Earth moved	5,600,000 cubic yards
Gravel sub-ballast	650,000 cubic yards
Crushed rock ballast	520,000 cubic yards
Employees	1,000 to 1,500

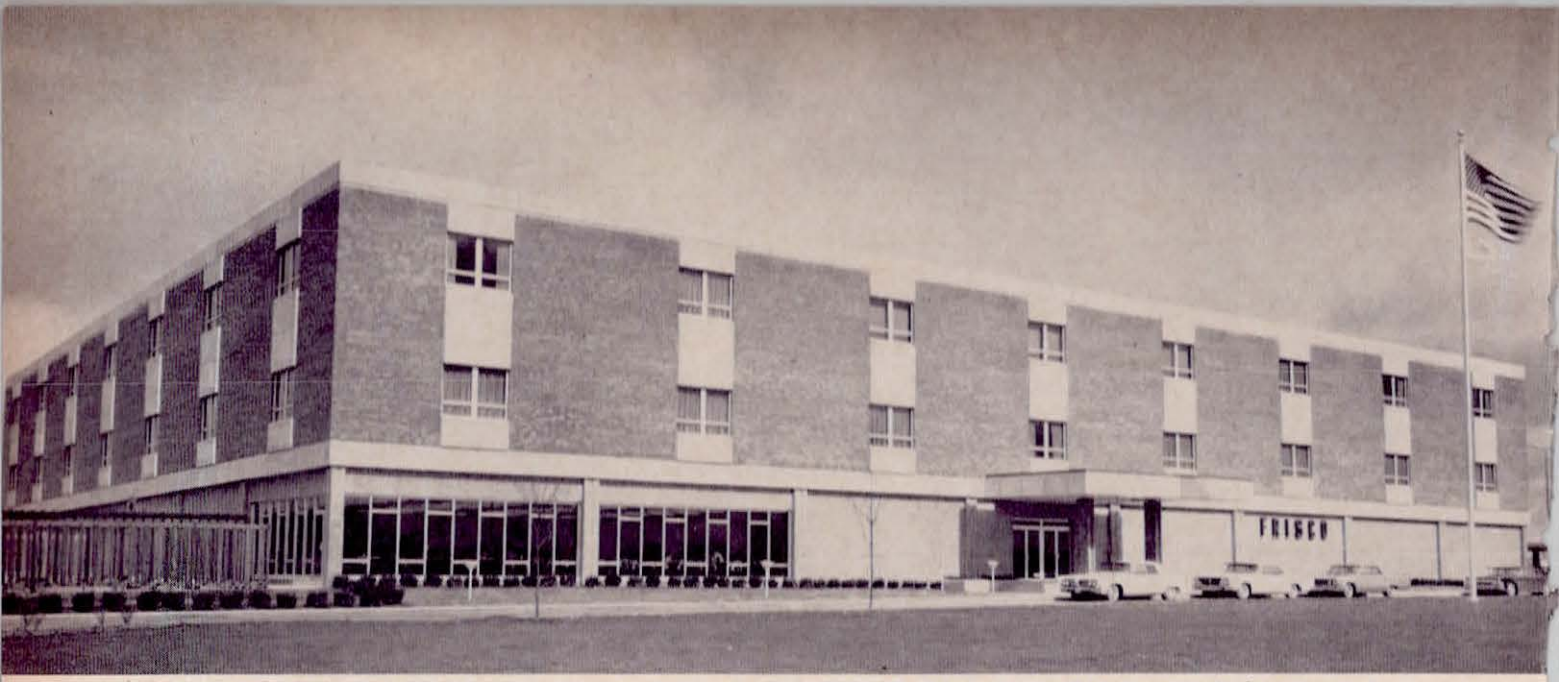
ACCESS-LINE STATISTICS:

New access line	35 miles
Double-tracking existing single-track line	27 miles
Reconstruction existing single-track line	38 miles
Bridges and grade separations	53
Earth moved	9,000,000 cubic yards
Gravel sub-ballast	500,000 cubic yards
Crushed rock and slag ballast	425,000 cubic yards
Ties	405,000
Trackage	138 miles

TRAIN DISPATCHER has direct lines to various dispatchers' circuits, yard offices and supervisors.



CONTROL MACHINE, one of two, for handling centralized traffic control on about 100 miles of lines providing access to CN's new Toronto yard. Panel in background indicates locations of trains.



DESIGNED FOR GROWTH: Frisco's new corporate home at Springfield, Ill., takes the road's future needs into account.

NERVE CENTER: Telecommunications shares third floor of new building with operating and related departments.

Frisco builds for tomorrow

Handsome and functional, Frisco's new headquarters building at Springfield, Ill., is designed to accommodate the working railroader. It provides for Frisco's future as well as present needs.

Frisco's new $2.5-million headquarters at Springfield, Mo., has been in use for almost six months—long enough for Frisco President L. W. Menk to feel that his road not only has the newest headquarters building of a major railroad but also the most functional.

• **Huge moving job.** The new facility was completed last November. Frisco used 350 moving vans and a tightly planned moving schedule to shift 900 employees and mountains of records, furniture and machines from 11 locations into the new facility. The shift took place between late in the afternoon Friday, Nov. 6, to the morning of Monday, Nov. 9.

Frisco's new headquarters, about 3.5 miles from downtown Springfield, occupies approximately eight acres—including a parking lot for 509 automobiles. The building has three complete floors plus a partial fourth floor,

providing 150,000 square feet of space. There is provision for an additional 50,000 square feet, should the railroad decide to add it.

● **Three shifts.** Headquarters personnel work around the clock in the new facility. Approximately 720 employees work the day trick. The balance of the building's 900 workers work the afternoon and midnight shift.

There is a cafeteria on the main floor of the building equipped to serve 240 persons at a sitting. Lunch periods are staggered so that 120 employees can go through the cafeteria line every 15 minutes. The building, completely air-conditioned, is equipped with automatic elevators. Just outside the cafeteria is a small patio for employees' use during summer lunch hours.

● **Made for meetings.** The building in many subtle ways was designed to accommodate railroad men at work. Growing need for meetings and committee sessions resulted in the building having nine conference rooms and a large assembly room. The conference rooms include a board room and a conference room on the fourth floor near the president's office. The assembly room on the ground floor will accommodate 150 persons. The other conference rooms will hold from eight to 16 people.

Aside from the imposing entrance to the facility on the front side of the ground floor, there is an entrance to the second floor from the parking lot to the rear of the building. This accommodates such three-shift departments as the road's communications and signal department, computer department, dispatchers and so forth.

● **Streamlined layout.** First-floor space is occupied by Frisco's purchases and stores department, local traffic office, records office and records storage space, photo lab and employee public relations department, and by the building manager. Building equipment is at the rear of the first floor—electrical and communications equipment, boiler room, mechanical equipment and building storage space. A shipping and receiving room is adjacent to the building's service entrance. To the front, is the kitchen and lounge of the cafeteria. The assembly room is also on the first floor.

The accountants just about monopolize the second floor. The road's auditor of disbursements, auditor of revenues, comptroller and data processing center occupy most of the second floor. In addition, the Frisco's paymaster and freight and passenger traffic offices are on the second floor.

The third floor has the Frisco's operating department, transportation department, personnel department, mechanical department, freight claim department, dispatchers, communications and signalling, land and tax, and engineering maintenance-of-way departments. A telecommunications center and offices for the Frisco Transportation Co., round off the third floor occupants. The fourth floor of the building contains a group of offices including the president's office, the road's board room and a conference room.

MEN AT WORK: Vice President-Staff R. P. de Camara, seated at his desk, talks with B. C. Allen, director of methods, procedures and computer services. Building houses a total of 900 employees.

● **Building frame arc-welded.** Complete construction time for Frisco's new office building was less than a year. The building consists of 56 bays 30 ft by 30 ft, with a story height of 14 ft. The fourth story consists of four bays, each 30 ft by 30 ft.

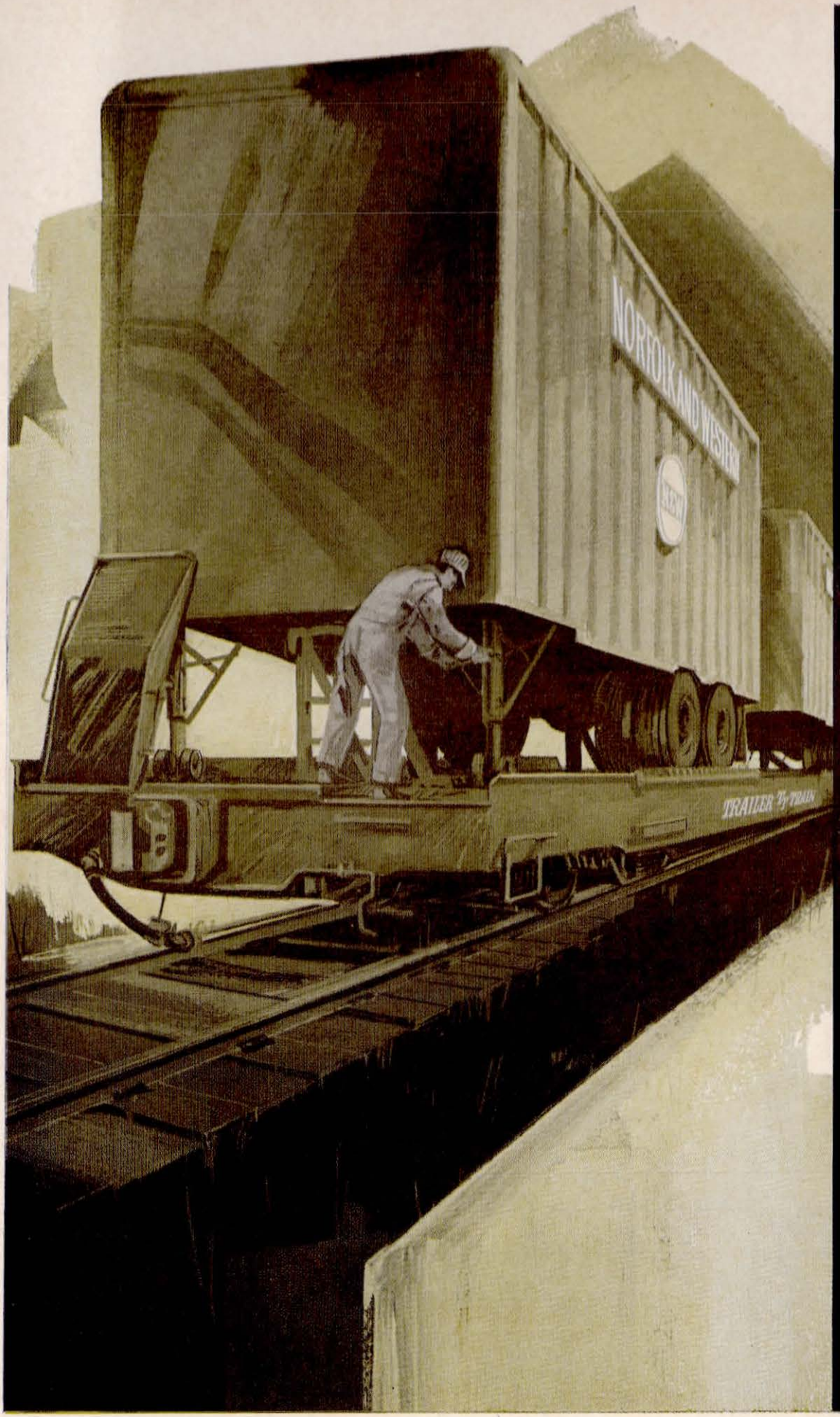
Arc welding of the building's structural framework resulted in a saving estimated at $37,500 and helped reduce construction time, say the building's architects. Savings were accomplished by testing and qualifying welds of the moment connections of girder stab flanges to columns and to column stiffener plates. Costly and time-consuming bevel-joint preparation was omitted for typical connections. The welds were two-pass, semi-automatic arc welds.

All column splices were shop-welded, which increased column shipping length to 58 feet but which facilitated erection. Bracing connections of 6-inch, extra-strong pipe were beveled and field-welded. At bracing pipe intersections, bolted connections would have interfered with the elevators and the architectural space requirements. The use of simplified, standardized details made it possible to complete erection of the steel skeleton considerably ahead of schedule.

● **Less steel required.** A comparison of bolted and arc-welded construction for Frisco's new office building, say its architects, indicates a saving of two pounds of structural steel per square foot—about 150 tons of structural steel for the entire facility.

Fruco & Associates of St. Louis were the engineers and architects. General contractor was the Fruin-Colmon Contracting Co., also of St. Louis. The Havens Steel Co. of Kansas City, Mo., was the structural steel fabricator and erector.

Design work on the building was begun on Dec. 28, 1963, and the building was in full use on Nov. 9, 1964. ■



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Decatur, Ill.
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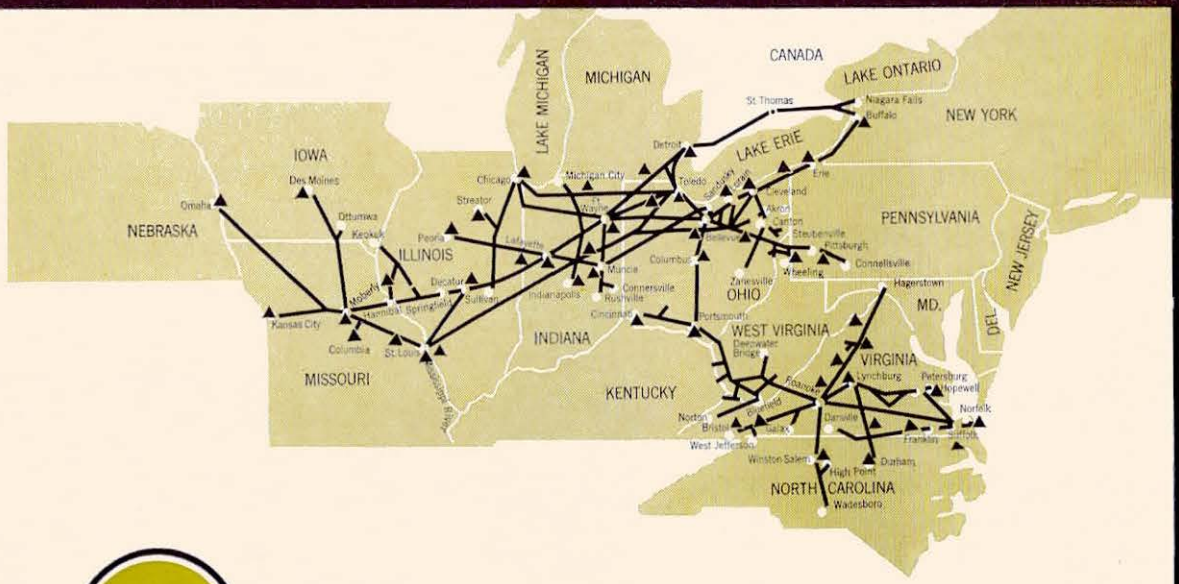
Good piggyback service can also be an important factor in plant site selection. For help in finding the right site, call H. P. Cotton, Asst. Vice President—Industrial Development, Norfolk and Western Railway, Roanoke, Virginia.



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Norfolk, Va.
Peoria, Ill.
Portsmouth, Ohio
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Roanoke, Va.
Rook (Pittsburgh), Pa.
E. St. Louis, Ill.
St. Louis, Mo.
South Bend, Ind.
South Boston, Va.
Streator, Ill.
Suffolk, Va.
Toledo, Ohio
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1. ( ) they want to help the colleges

You were right if you checked No. 2.

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Automatic system washes hoppers

Santa Fe installation prepares 200 cars daily for new ladings.

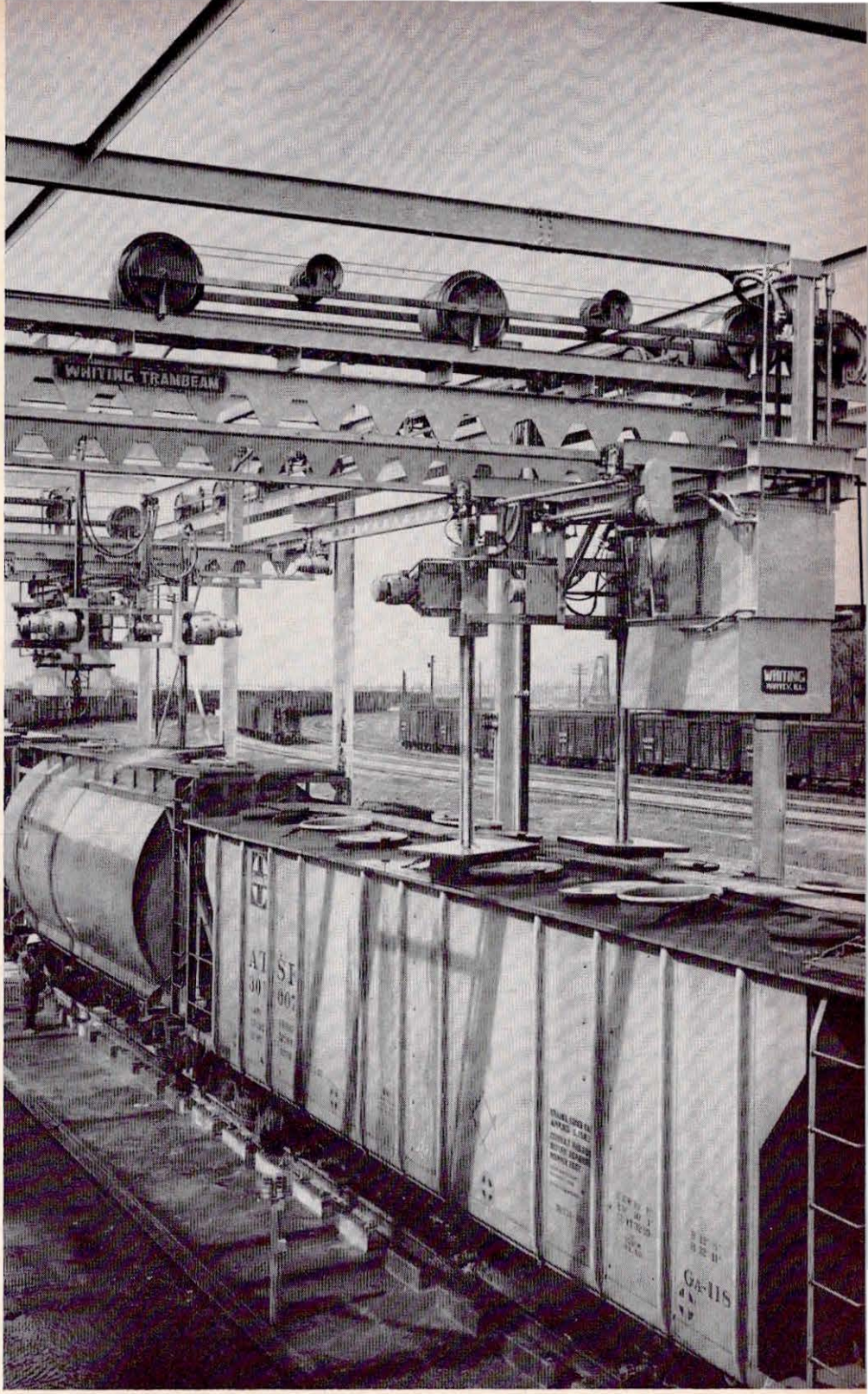
The Santa Fe washes the interiors of over 200 covered hopper cars in eight hours at a two-track washing system in its Clovis, N.M., yards. The new facility, engineered and fabricated by Whiting Corp., Harvey, Ill., is used to clean cars that have handled diverse commodities such as potash and grain.

● **Jet washing.** The system consists of two underhung cranes each having a control cab and an operator. Each crane has two washing wands, equipped with roto-nozzles with four jet outlets which provide 140 gallons of cold water per minute at a pressure of 400 pounds-per-square-inch. One wand is stationary in a horizontal plane. The other may be traversed for various widths of hatch openings.

When washing a car, the operator uses pushbutton controls to lower the wand through the hatch opening. The nozzle is then activated by an air motor. The four jets rotate vertically and horizontally from 300 to 400 rpm to provide full spherical spray coverage of the car's interior.

● **Spotting cars.** Both cranes usually work on the same track, each washing one of two cars in the 140-foot washing area. The cars are advanced at 30 feet a minute on both tracks in 45-car cuts with increments of two cars alternately placed in the washing area.

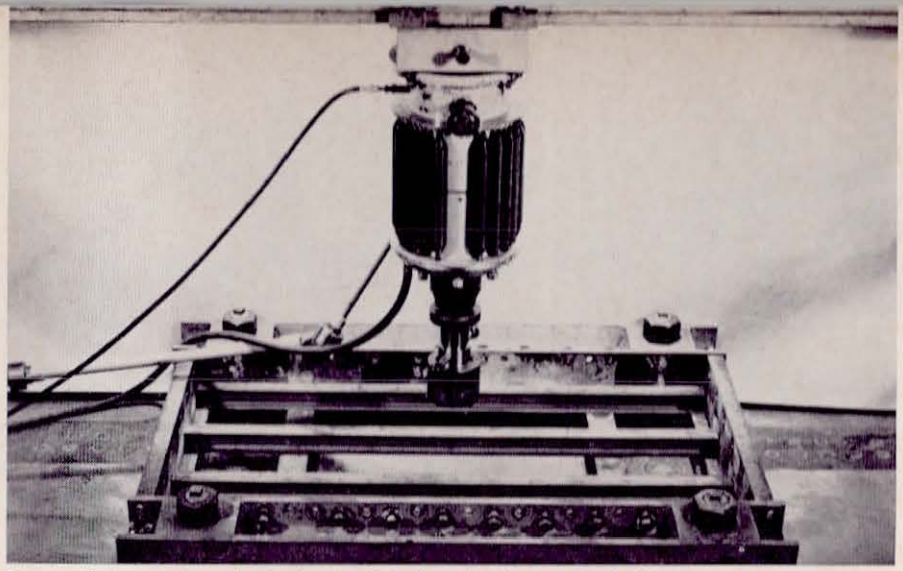
The cars are moved with two continuous wire cable double-drum, 20,000- to 40,000-pound car pullers with slack tension take-up towers and dual parallel Whiting robot car movers. Bearing-mounted rollers on the robots contact the axle to advance cars to the washing area. Dual robots are used to equalize the force applied to the car truck. Reverse movement of the robots is automatic. Repositioning is done by a special wheel-counting device mounted on the robot. When the robots pass a designated number of wheels, they automatically stop in position to advance the next two unwashed cars of the 45-car cut.



WASHING WANDS mounted on crane are inserted through car's hatches. High-pressure water then removes lading residue.

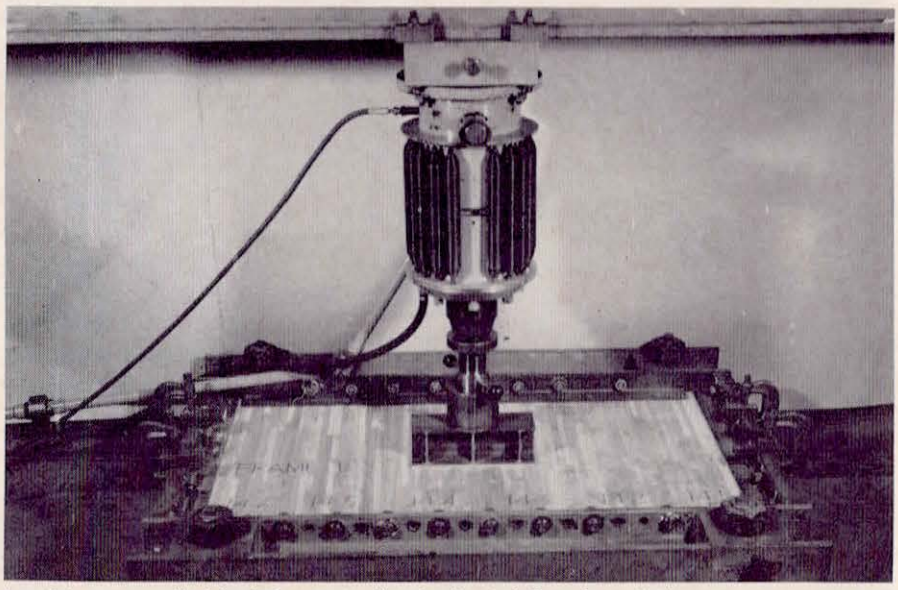
● **Electrical controls.** When the washer is operating on one track, cars on the adjacent track may be moved into position. However, the track the washer is working on is electrically interlocked to prevent any movement of the cars. One crane can work on each of the tracks simultaneously. Operators of both cranes have control of movement of cars and washing on both tracks. Either operator may be designated to move cars by remote control from within the crane cab.

Each track has four locations at ground level in the washing area for workmen to open and close the hopper slides. As a safety precaution, control switches are provided that interrupt the control circuitry for the car pullers when slides are being worked on. ■



Supporting structure in tests simulated part of a car underframe.

Laminated flooring . . .



Load frame applied test forces to the laminated floor installation.

. . . and what it can do

Use of laminated-wood car decking is increasing. Now, from lab tests, comes a new appraisal of the material's capabilities.

Improved materials, products of today's rapidly expanding technology, are not always fully appraised as replacements for their traditional counterparts. This was about the situation with laminated wood decking, which is finding increasing application as a freight-car flooring material—being used in place of conventional wood planks.

A thorough appraisal of applications of Dura-Wood, a laminated-oak flooring, was the goal of a test program conducted late last year at Lehigh University for the E. L. Bruce Co. Wheel loads of today's heaviest materials-handling equipment used for loading and unloading freight cars were simulated on test sections of Dura-Wood. Then, going beyond today's limits, the Lehigh laboratory at Bethlehem, Pa., reproduced the wheel loads of lift trucks that almost inevitably will be built in the years ahead.

● **The problem.** Mechanized loading and unloading by customers has focused much attention on freight-car-floor design over the past decade. As the weights of loads on lift-truck wheels have moved steadily upward, carbuilders and railroad designers have had to give increasing attention to floor strength. The AAR Mechanical Division several years ago required that conventional wood floors in new and rebuilt cars have a minimum thickness of 2¼ inches, coupling this with a requirement that additional stringers spaced more closely be installed under such floors.

It was during this period that laminated flooring entered the picture. AAR requirements were soon altered to permit the use of 2-in. laminated material which was found to be fully as strong as 2¼-in. lumber.

Along with the heavier floor loads imposed by lift trucks, truck steering and braking causes floor wear which could eventually impair strength. The laminated material is said to impart greater strength to a car's floor. Its edge-grain arrangement is said also to have much better abrasion resistance.

● **Just what will it do?** Ultimately, the capabilities of a new material such as the laminated decking must be expressed in terms which can be used directly by designers. That was the substance of the assignment Bruce gave to Lehigh's Fritz Engineering Laboratory. Representatives of railroads and carbuilders were consulted in the course of developing the test program; some subsequently viewed the actual experiments.

Fritz Laboratory, an adjunct of Lehigh's civil engineering department, since 1909 has concentrated on structural and material investigations. Much of the work is centered around a five-million-pound machine for tension and compression testing, long among the largest available in the U.S. While today's lift-truck loads are high, they have not yet reached levels which would have required the use of Lehigh's highest capacity testing devices.

● **On simulated underframe.** After considerable study, the laboratory staff, under R. G. Slutter, engineer of tests, found it practical and realistic to simulate only a section of a box-car underframe between two of the major cross-members and from center sill outboard to one side sill. The result was a 5- x 6-foot test section with 12-in.-wide Dura-Wood sections laid parallel to the 5-foot side. Beams to simulate the longitudinal floor stringers of a box-car underframe were installed beneath the Dura-Wood and parallel to the 6-foot dimension, spaced, first, to duplicate the former standard two-stringer and then, finally, to today's mandatory three-stringer design.

The program involved both 2-in. and then 2⅜-in. thicknesses of the laminated flooring. Force was applied in

500-pound increments through a 200,000-pound test frame to a 5- x 16-in. load pad, the area required for simulation of lift-truck wheel loads by AAR Mechanical Division car-design specifications.

Ultimate purpose of the test was to make specific recommendations on freight-car floor construction, having studied two thicknesses of laminated flooring on various spacings of underframes, checking load distribution over several tongue-and-groove sections. Testing was completed late last year. Data for flexure strength, horizontal shear, effect of butt joints in the individual laminations and lateral distribution of loads to adjacent planks were recorded and analyzed.

● **What they found.** The Lehigh engineers had made no previous investigations of wood-and-steel composite structures directly comparable to the freight-car-floor problem. Slutter does, however, cite some similarity to tests of prestressed concrete slab highway bridges. It was found that, as might be expected, the tongue-and-groove joints are the weakest points in the structure. In no case, however, were any of the Dura-Wood tongues sheared during the tests.

The researchers also found that the 2-in. flooring would be adequate for present lift-truck loads if properly supported. This, however, might not always give proper consideration to degradation of the deck by truck wheels and by applications of blocking, the Lehigh engineer says.

Analysis of car underframes led the Lehigh investigators to conclusions about the steel floor stringers which had been reached independently by the AAR Research Center in Chicago. This concerned the greater structural efficiency of I-beams rather than the traditional Z-sections. The AAR Mechanical Division some time ago recommended that the 5.7-pound-per-foot I-beam, substituted for the standard 6.7-pound Z-section, would produce a floor stringer 25% stronger with a reduction in weight of 15%.

● **More alloy-steel stringers.** The Lehigh investigators based all of their floor recommendations on I-beam stringers, noting that a car with Z-section stringers just wasn't designed for high-wheel loads. Typical of the recommendations made in a recently published report was that, while present 25,000-pound wheel loads can be sustained on ordinary carbon-steel stringers of conventional size and spacing, the drive to heavier lift trucks will probably require the increased use of alloy-steel stringers, which can still be topped by 2⅜-in. laminated decking. ■

RAILROADING AFTER HOURS WITH JIM LYNE

LYNE

MISSING MILITARY LOCOMOTIVE—Bill Gorman of the PRR Mutual Magazine tells me of a military locomotive which was dropped into the water while being unloaded at Le Havre during World War II. In a few days it was lifted out of the water, badly in need of classified repairs—and it was moved to what served as the local enginehouse to await attention.

Meantime, other locomotives of the same type were taking a beating. So the once-wet locomotive served as a convenient storehouse for spare parts, and one that did not require requisitions in triplicate—just go over to the once-wet job and help yourself.

In due course, the military authorities discovered they were short one locomotive, and narrowed the responsibility down to a first lieutenant who must have been responsible for the locomotive's disappearance.

At one time it seemed as if they might try to deduct the cost of the locomotive (in installments) from the lieutenant's pay of some $250 a month. After a good deal of eloquent letter writing the lieutenant managed to exculpate himself, so the story had a happy ending after all, and the lieutenant went on to a successful career in railroading.

MIDDLE CAR VANISHES—Sherwin-Williams' R. A. Belford at Cleveland has heard a real tall story and would like to know if there is any factual basis for it. (The yarn has a familiar ring, but beyond that feeling I have no evidence.)

Here is how it goes:

A freight car in the middle of a train was missing when the train arrived at its terminal. Search revealed the missing car in a ditch out along the line. Apparently (so goes the story), the car rolled over while the train was en route, and the following cars—the grade being downward—caught up with the forward part of the train and coupled automatically, so the train arrived intact, except for the one missing car.

I dislike to be a skeptic about the veracity of a story as artistic as this one—but I can only observe that, if this incident ever occurred, it must have happened before the day of continuous air brakes. Otherwise, the overturning of the car in the middle of the train would have set the brakes on the train and the truant car would have been found right at the point where it played hookey—and knowledge of its absence would not have had to await the train's arrival in the terminal.

Anyhow, there are evidently some ingenious imaginations at work in and around the railroad business.

RAILWAY INTERNATIONALISM—The films of their railway developments which several railway systems have made (notably the French and the Japanese) for showing to interested groups in other countries are a powerful influence toward making the profession of railroad work increasingly international and less and less insular. No one, of course, understands this trend more thoroughly and speaks of it to more effect than M. Louis Armand of the U.I.C.

The trend is constantly being reinforced by frequent interchange of visits between the railwaymen of different countries. The European Common Market is probably bringing more immediate and insistent pressure toward this end than any other one force now in existence.

A couple of centuries ago the upper-class young Englishman completed his education by "the grand tour" of other important European countries (as exemplified by James Boswell, the biographer). Is not a similar grand tour now in order for most top railway men, whatever their country—with the understanding that they would spend their time in yards and cybernetic installations (and not in the perhaps more diverting but less professional interests which attracted Mr. Boswell)? The speed of air transport makes intercontinental visits no longer a question of time, but only of money. And the speed of railway developments, in all countries, makes the grand tour not a once-in-a-lifetime matter, but possibly in the range of once a year. I have yet to talk to a railwayman who has visited the railways of other countries who has not brought back useful information which was more than enough to recompense the cost of his time abroad.

Union Pacific Railroad phot

They still had a long way to go

The sign was hung on the 1000-mile tree in Weber Canyon, Utah. But there were still almost countless miles to go. Pick-and-shovel miles.

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Cat-built equipment... drastically cutting maintenance costs for modern railroads. Worth investigating.

This 944A is being used by a midwestern railroad to remove fouled ballast from between main tracks.

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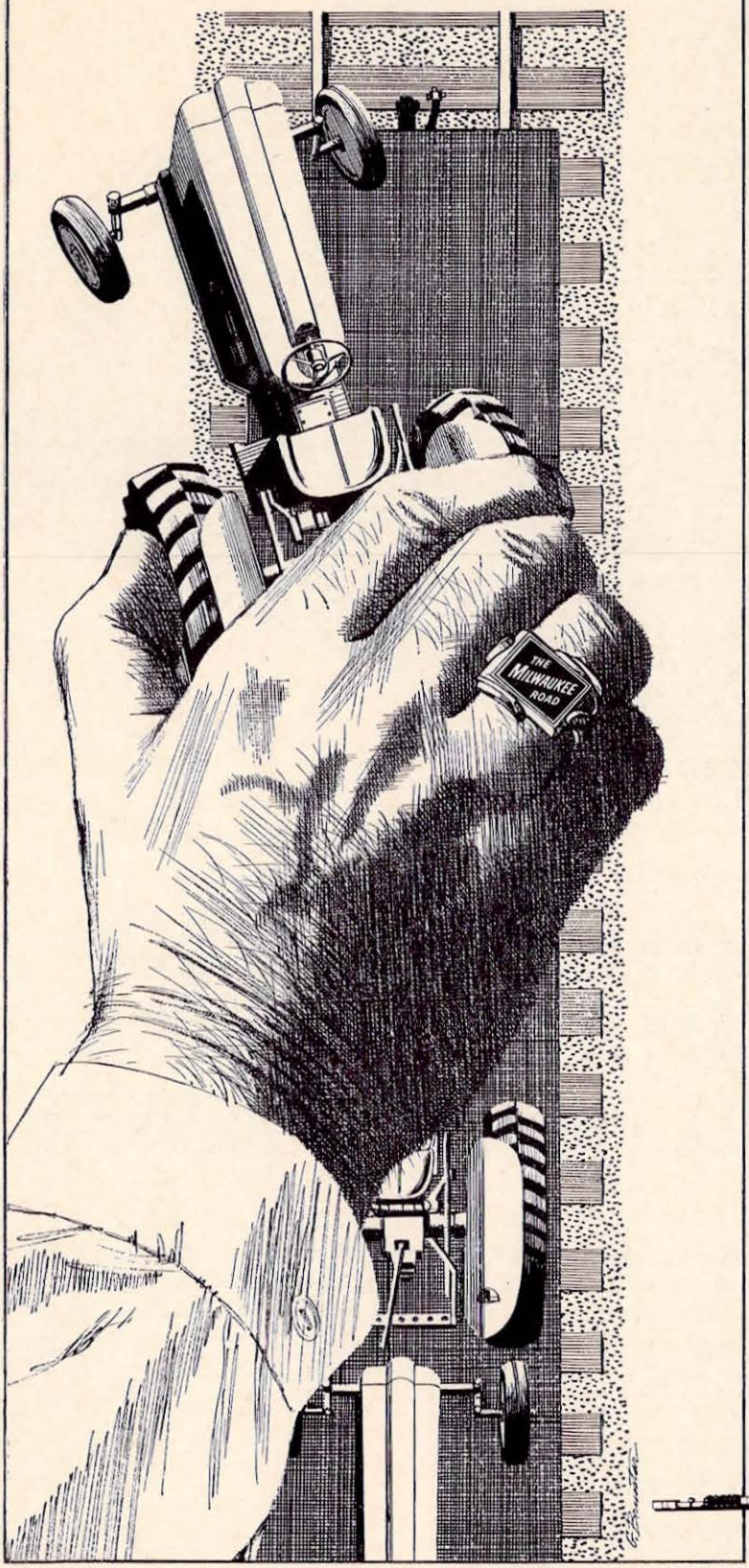
THE MILWAUKEE ROAD'S "CREATIVE CREWS" IN ACTION IN THE AGRICULTURAL IMPLEMENT INDUSTRY



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a distinctive idea in railroading

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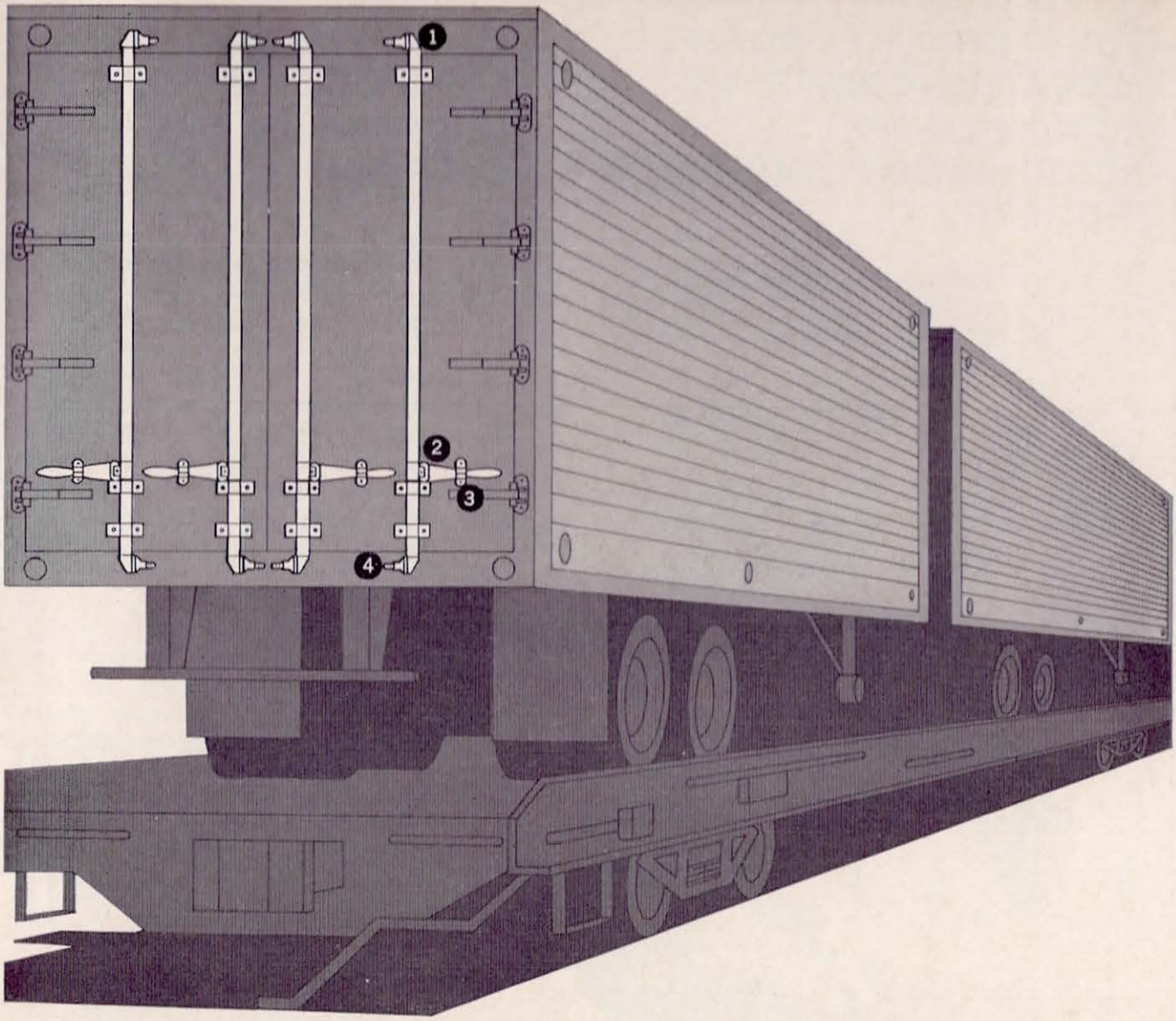
The railroad of "Creative Crews"



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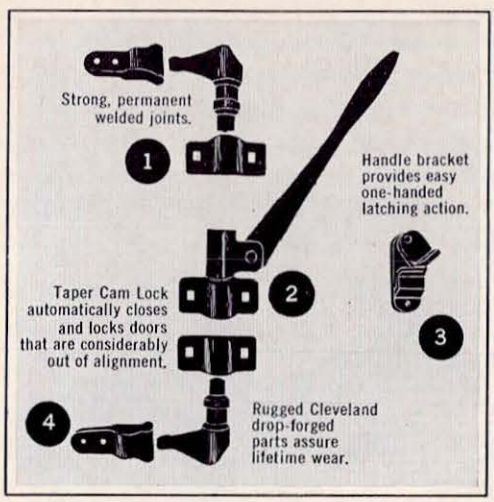
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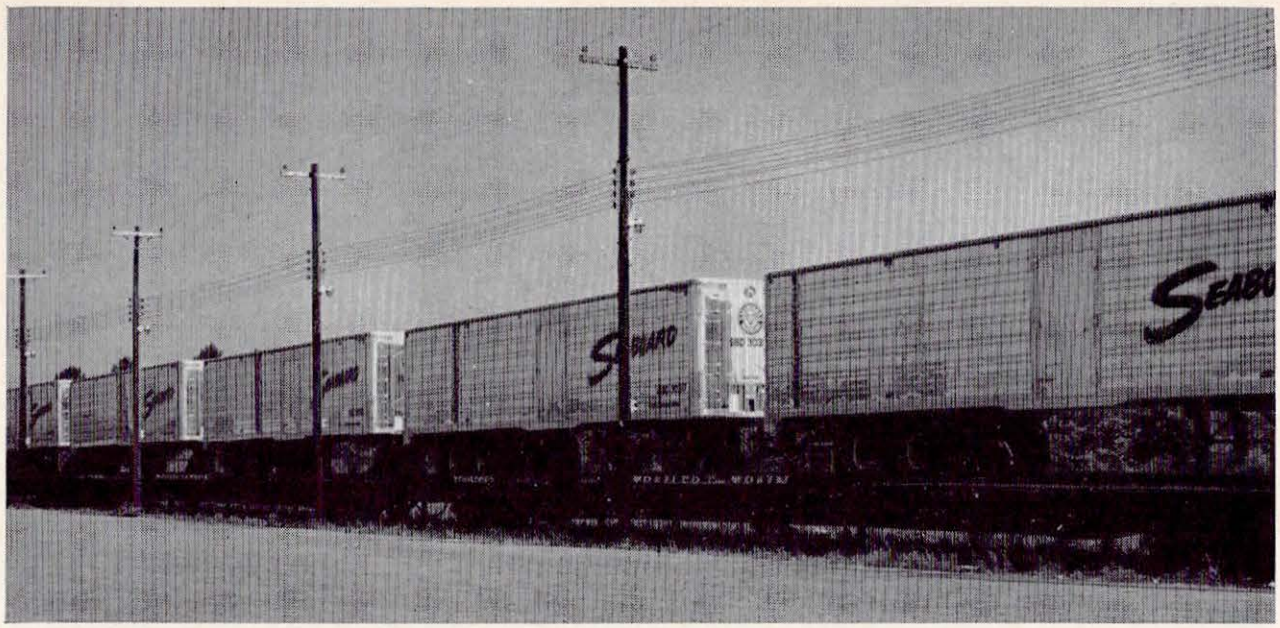

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IN THE SOUTHEAST IT'S

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Longer track circuits mean more savings

Signal engineers find new equipment and techniques can cut costs in signal territory and at protected grade crossings.

Like many other railway track components, insulated joints cost money to buy and money to maintain. Such joints cannot be entirely eliminated where signaling is in service. The number of insulated joints used, however, can be reduced.

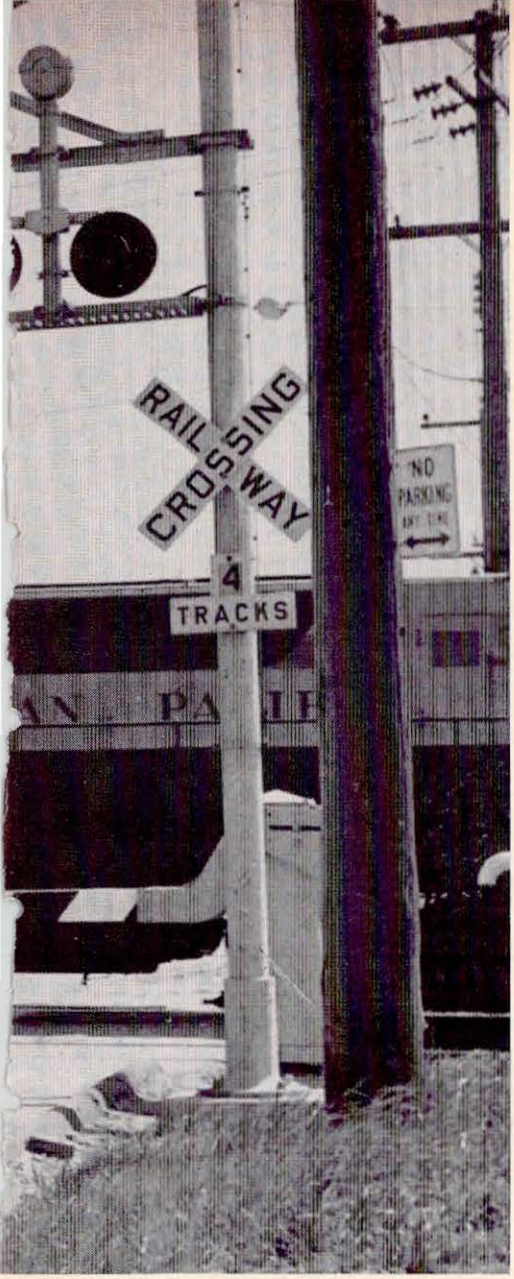
The joints are necessary to define the extent of track circuits in signal territory and at highway-grade crossings where flashing-light signals and/or gates are in service. Recent developments in equipment and techniques are enabling signal engineers to reduce substantially the number of these joints.

At grade crossings, new equipment developed by the Southern Pacific and Marquardt Corp., requires only one pair of insulated joints on each track at a crossing. Using conventional methods of control, several pairs of insulated joints are usually required.

● **Overlay circuits, too.** Another recent development designed to reduce the number of insulated joints at highway grade crossings has been overlay track circuits. These circuits employ alternating current in the 1,000- to 2,000-cycles-per-second frequency range. Several railroads have made extensive installations at highway grade crossings in welded rail and electrified territory. One advantage of the overlay circuit is that it may be applied to rail already carrying other types of electrical circuits, such as direct current or 100-cycles-per-second alternating current.

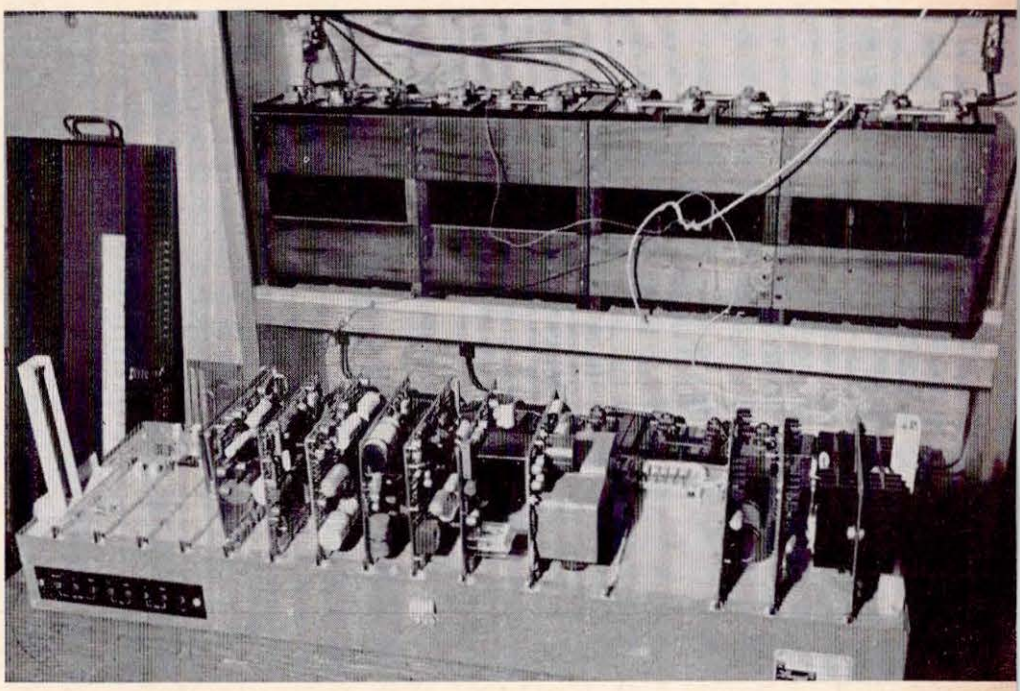
Use of overlay circuits has eliminated the need for insulated joints at highway grade crossings. Illinois Central, for example, installed audio frequency overlay (AFO) circuits at seven crossings in Effingham, Ill. The AFO circuits eliminated the need for 224 insulated joints and also eliminated two crossarms of signal circuit wires.

From a cost standpoint, one road's estimate strongly points up the savings that can accrue from AFO installations.



FEWER CIRCUITS SAVE $17,000 AT ONE CROSSING

Canadian Pacific's North Queen Street crossing in Toronto (left), with an average of 80 daily train movements and heavy highway traffic, gets fully automatic, timed protection from Marquardt Model 200 Grade Crossing Predictors (below).



The figures below are for a single-track highway crossing project with conventional track circuits requiring eight insulated joints, compared with a similiar project using overlay track circuits.

—$2,500 cost for conventional circuits and 8 insulated joints.

—$1,700 cost for overlay circuits without insulated joints in non-signal territory.

—$2,025 cost for overlay circuits without insulated joints in block signal territory.

—$600 annual expense to maintain the eight insulated joints required in the conventional circuit installation.

Two factors have given impetus to the need for reducing the number of insulated joints in block signal territory: (1) increased use of welded rail; and (2) lengthening of blocks to permit safe operation of high-speed, heavy freight trains. Signal engineers have responded to the challenge by providing longer track circuits without the attendant increase in the number of insulated joints. This is important, because insulated joints cost about $100 per pair, with annual maintenance costs running to about $200.

Conventional dc track circuits for automatic block signal territory average 4,000 feet in length. Most such circuits were installed when block lengths were about one mile long. In recent years railroads have extended block lengths to two miles. Some roads have 2.5- to 3-mile blocks. Thus, using conventional track circuits, as many as four track circuits would be required in the longer blocks.

From the standpoint of installation and maintenance cost, a longer circuit makes sense. If the signal block is 16,000 feet (one road has adopted such blocks as standard in signal territory where welded rail is in service or to be installed), four conventional dc track circuits would be required. Thus, there would be three pairs of insulated joints between signals. Insulated joint costs would be $300, plus annual maintenance of $600.

To provide just one track circuit for these long blocks, many signal engineers are using either center-fed or coded track circuits. In the center-fed circuit, the battery is at the center of the circuit and feeds towards the ends where the relays are placed. In the conventional circuit, the battery is at one end and the relay at the other. One road using the center-fed circuit in welded rail territory reports satisfactory operation of 16,000-foot circuits. Insulated joints are at signal locations only. Hence, three pairs of insulated joints have been eliminated in each automatic block.

Another railroad has installed several hundred miles of coded-track circuits in welded-rail territory. This has eliminated one or two pairs of insulated joints per track per automatic signal block. As the name implies, these circuits send coded or pulsed direct current through the rails.

• **Additional savings.** Eliminating insulated joints is only one of many savings that can accrue from lengthening track circuits. "Just think a bit about the apparatus eliminated where cut sections are not required," John W. Hansen, manager transportation marketing, Union Switch & Signal Division of WABCO, told a recent meeting of the Chicago Maintenance of Way Club. "Included are the elimination of a pair of insulated joints, batteries, rectifiers, transformers, track relays, instrument cases and foundations, line drops, commercial power connections with meters,

With GCPs, traffic is faster, employees safer

and motor car setoff facilities. This immediately suggests a write-off of capital investment with a resultant reduction in taxes."

● **How CPR cut costs.** Canadian Pacific realized a $17,000 saving by installing Marquardt Grade Crossing Predictors at a highway crossing. The GCP equipment provides an infinite number of start points for operation of crossing protection equipment, all based on the fact that the equipment will operate when a train or engine is 30 seconds away from the crossing. To provide somewhat the same flexibility with conventional circuitry, a study by CP engineers indicated, at least 12 separate timing circuits would be required on the mainline.

In an industrial area of southwest Toronto, Ont., the CPR installed flashing-light signals and short-arm gates at the North Queen Street crossing of its Canpa subdivision. To provide fully automatic operation without resort to pushbuttons for manual control during switching operations, the road installed model 200 Marquardt Grade Crossing Predictors.

North Queen, a 45-foot, 2-lane, road (4 lanes at the crossing) crosses the double-track mainline and two side tracks at the west edge of Islington service yard. This 5-track yard is used for the make-up of local trains doing industrial switching in the area. A normal practice is for a westward train to set off the caboose clear of the yard switch and then proceed to build the train on the main track. Cars are shoved back on the main track until the train is complete. Then it proceeds westward. Eastward trains and industrial assignments frequently stop near the crossing to ask the yardmaster whether there is more work for them to do. Cars are frequently left standing on all approaches to the crossing for long periods of time. All switches within the approach circuits are used daily. Often there will be two engines working in the vicinity of the crossing, one on each main track. On occasion there have been three engines. Of the 80 daily train and engine movements over the crossing, 8 to 10 are through freight trains. Maximum speed in this territory is 25 mph.

● **Much highway traffic.** In addition to railroad activity at the crossing, there is considerable vehicular traffic, particularly trucks serving plants and warehouses in the area. Vehicular traffic is heavy around 8 a.m. and 5 p.m. Before the installation of automatic crossing protection, switch crews had to flag the crossing. "You took your life in your hands to get out and flag the street at rush hour," commented one switch crew member. This man reported that the automatic protection has not only made it safer for them, but that now there is less delay to switching moves and vehicular traffic.

Four Grade Crossing Predictors were installed at insulated joints on the two main tracks. The joints are opposite and just off the west edge of the North Queen street pavement. A pair of GCPs is on each main track looking away from the insulated joint. Direct current track circuits, about 200 feet long, were installed on the two side tracks.

Half-minute warning

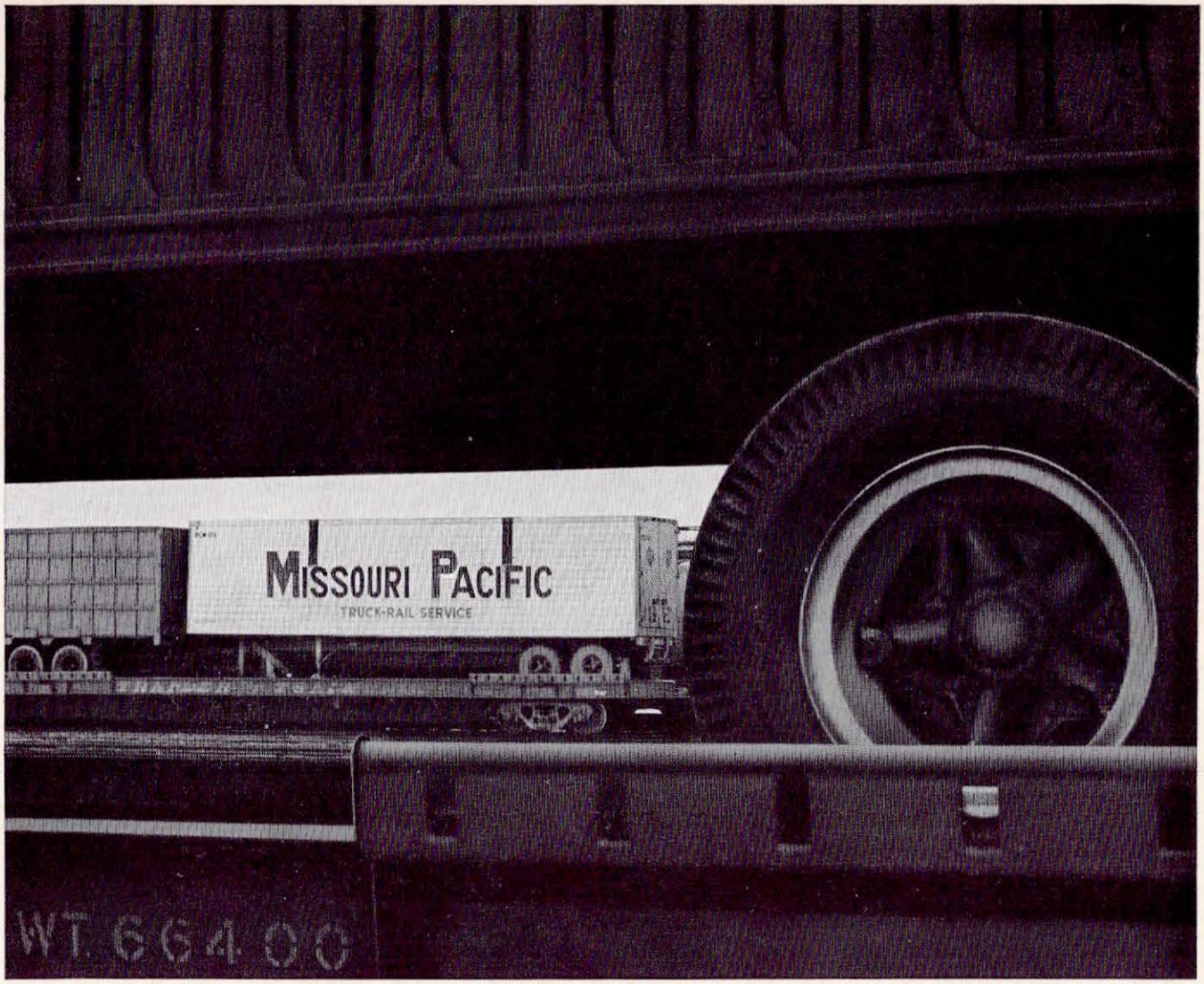
The North Queen Street approach circuits for the GCPs, 1,050 feet long on the two main tracks, are defined electrically by narrow-band shunts. These shunts are tuned circuits completely encapsulated and buried in the ground adjacent to the tracks. The insulated joints at the approach point for protection of the nearby crossing of the Queensway are by-passed by completely encapsulated ac wide-band shunts. The approach circuits on both main tracks provide a 30-second warning time for the crossing, in addition to an allowance of 2 seconds equipment time for the GCP. For a normal straight-through move, the flashing lights are set into operation 30 seconds before the train arrives at the crossing. About 3-5 seconds after the GRS flashers begin operation, the Griswold gates are lowered. The GCP equipment provides a positive ringing section or "minimum distance" which is set for approximately 35-40 feet beyond the pavement edge.

● **How GCPs operate.** The GCP units apply constant 200 milli-ampere ac (156 cycles per second) to the rails. With the circuit unoccupied, the unit measures an inter-rail voltage of approximately 7½ volts at the crossing. A train approaching the crossing causes the measured voltage to be lowered more or less proportionate to how far the train is from the crossing. By using the rate of change of the distance, the unit can determine the train's speed, and thus can determine when the train is 30 seconds away from the crossing. To provide prediction for the two spurs, or sidetracks, the switches are insulated and bonded so that the GCP units "look down" the fouling section away from the crossing. The bonds are closer to the frog than they are in conventional switch bonding. This bonding arrangement has been generally successful and works satisfactorily for trains approaching the crossing on the spurs at 10 mph, a normal speed.

When a train or engine is making a move away from the crossing over the crossover reversed, there is a momentary operation of the flashers and bell because the train suddenly appears on the approach of the other main track GCP units. The voltage for this other GCP instantaneously drops to a much lower value. Thus, the GCP suddenly "sees" a train approaching at relatively close range traveling at infinitely high speed. The protection is then put into operation for a second or so, then cuts off when the GCP discovers that the train is not actually approaching at such a high rate of speed. In cases when the flashers start operation, it is only for a second or two, not long enough to lower the gates.

● **Acceleration handled well.** For various reasons, most of the through trains to move over this crossing are slightly accelerating (maximum speed is 25 mph). Because the GCP equipment is set up to predict for 30-second operation, and the crossing only requires 22-second operation, this acceleration is handled well. For example, if a train enters the approach circuits at a certain speed, the GCP equipment predicts when the train is 30 seconds away. If the train is accelerating, it will actually reach the crossing in somewhat less time. Even under these conditions, examination of the recorder chart shows that the protection equipment regularly operates between 22 and 30 seconds before the train reaches the crossing.

For switching movements on the tracks, the CPR reports that the GCP equipment predicts extremely well. For the frequent movements out of the yard, normal ringing time varies between 10 and 16 seconds at the speeds generally used. There is, therefore, enough time for the gate arms to be fully lowered. It should be noted that this approach is relatively short and that the operation obtained is not only satisfactory but the best possible without restricting train speeds or requiring a stop. Switching movements that stop within a reasonable distance of the crossing on other approaches achieve similar warning times. These warning times are sufficient to insure that the gates are fully lowered before the train reaches the crossing. ■



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MISSOURI PACIFIC
TEXAS & PACIFIC

Railway Age Service Page

REVENUES AND EXPENSES OF RAILWAYS

(Dollar figures are stated in thousands: i.e., with last three digits omitted)

First Quarter Figures of Calendar Year 1965

Name of Road	Average mileage operated during period	Operating Revenues				Operating Expenses										Operating ratio		Net from railway operation	Railway tax accruals	Net Railway operating income	
				Total (inc. misc.)		Maint. Way and Structures		Deprec. and Retirements	Maint. Equipment		Deprec. and Retirements	Traffic	Transportation	Total	Total						
		Freight	Pass.	1965	1964	Total 1965	Total 1964		Total 1965	Total 1964				1965	1964	1965	1964			1965	1964
Akron, Canton & Youngstown	3 mos.	171	1,536	....	1,583	1,433	177	145	19	277	275	81	115	573	1,242	1,185	78.4	82.7	342	168	185	94
Atchison, Topeka & Santa Fe	3 mos.	12,984	123,445	7,371	145,519	148,643	19,584	18,411	2,408	31,227	32,970	9,637	4,612	57,122	121,173	119,091	83.3	80.1	24,346	12,023	11,316	15,124
Atlanta & St. Andrews Bay	3 mos.	Class II as of January 1, 1965																				
Atlanta & West Point	3 mos.	Class II as of January 1, 1965																				
Western of Alabama	3 mos.	Class II as of January 1, 1965																				
Atlantic Coast Line	3 mos.	5,721	43,632	4,629	51,741	48,955	5,977	5,411	543	8,808	8,450	2,514	2,026	19,801	39,486	37,260	76.3	76.1	12,255	4,000	4,874	4,714
Baltimore & Ohio	3 mos.	5,746	84,742	2,188	92,855	88,559	9,384	10,006	1,440	15,385	15,853	2,571	2,637	38,945	71,864	70,388	77.4	79.5	20,991	6,384	4,878	3,117
Staten Island Rapid Transit	3 mos.	Class II as of January 1, 1965																				
Bangor & Aroostook	3 mos.	544	4,681	50	4,797	3,972	1,069	883	65	1,052	981	390	81	1,348	3,791	3,394	79.0	85.4	1,006	516	709	477
Bessemer & Lake Erie	3 mos.	202	5,559	....	5,671	4,591	618	511	96	2,008	1,242	369	124	1,414	4,543	3,606	80.1	78.5	1,128	1,419	898	745
Boston & Maine	3 mos.	1,527	12,954	1,024	15,822	15,600	1,847	1,923	425	2,135	2,234	697	343	7,188	12,366	12,657	78.2	81.1	3,455	1,192	902	264
CPR Lines in Maine	3 mos.	234	2,368	81	2,502	2,455	278	275	59	403	328	54	38	681	1,528	1,366	61.1	55.6	975	85	457	650
Carolina & Northwestern	3 mos.	Class II as of January 1, 1965																				
Central of Georgia	3 mos.	1,744	10,588	345	11,460	11,571	2,516	2,982	140	2,399	2,953	666	434	4,306	10,441	11,796	91.1	101.9	1,019	350	353	55
Central RR Co. of New Jersey	3 mos.	576	9,638	1,269	12,350	11,557	1,375	1,483	283	2,212	2,484	299	282	6,603	11,163	11,349	90.4	98.2	1,187	1,417	—1,302	—2,146
Central Vermont	3 mos.	382	1,842	113	2,114	2,222	475	434	54	300	266	24	52	985	1,930	1,800	91.3	81.0	184	167	—293	—50
Chesapeake & Ohio	3 mos.	5,119	84,077	984	88,637	86,379	10,100	10,400	1,526	17,868	17,026	6,338	2,469	36,986	73,573	69,317	83.0	80.2	15,065	7,361	8,732	11,231
Chicago & Eastern Illinois	3 mos.	862	8,061	324	9,289	8,559	1,037	938	98	1,447	1,549	492	373	3,854	7,401	7,020	79.7	82.0	1,888	594	417	360
Chicago & Illinois Midland	3 mos.	121	1,969	....	2,002	2,382	116	111	22	300	454	81	85	460	1,116	1,350	55.7	56.7	887	480	277	431
Chicago & North Western	3 mos.	10,416	45,738	4,299	52,637	51,251	7,815	7,866	1,247	9,168	9,493	3,320	1,844	22,081	44,000	43,794	83.6	85.4	8,637	3,906	1,014	1,147
Chicago, Burlington & Quincy	3 mos.	8,546	52,909	4,337	63,631	64,127	7,600	8,031	1,241	12,840	11,686	4,035	2,187	27,237	53,389	50,529	83.9	78.8	10,242	5,132	3,983	6,457
Chicago Great Western	3 mos.	1,458	7,101	15	7,558	7,746	892	1,014	143	1,350	1,386	408	376	2,920	5,854	5,895	77.5	76.1	1,704	577	287	555
Chic., Milw., St. Paul & Pacific	3 mos.	10,533	46,535	2,689	55,252	54,380	6,977	6,905	1,265	9,098	9,213	2,869	1,653	24,764	46,467	44,587	84.1	82.0	8,785	4,921	987	2,580
Chicago, Rock Island & Pacific	3 mos.	7,792	40,458	2,784	47,861	49,941	6,028	5,622	785	9,255	8,744	2,294	1,617	21,596	41,576	39,936	86.9	80.0	6,286	4,207	—1,590	2,292
Clinchfield	3 mos.	306	6,020	....	6,060	5,964	566	473	67	986	1,113	412	237	1,610	3,623	3,635	59.8	60.9	2,437	614	1,846	1,464
Colorado & Southern	3 mos.	709	3,184	120	3,750	3,762	477	501	54	701	639	259	98	1,655	3,201	3,146	85.4	83.6	549	224	191	267
Ft. Worth & Denver	3 mos.	1,037	4,095	210	4,933	4,958	605	688	70	742	851	130	231	2,274	4,204	4,424	85.2	89.2	730	315	—329	—178
Colorado & Wyoming	3 mos.	Class II as of January 1, 1965																				
Delaware & Hudson	3 mos.	744	9,947	303	10,469	10,260	1,081	982	266	2,177	2,005	557	334	3,797	8,107	7,698	77.4	75.0	2,362	1,229	1,020	1,148
Denver & Rio Grande Western	3 mos.	2,163	18,523	584	19,652	18,635	1,943	1,759	353	3,234	2,818	1,079	769	6,839	13,982	12,857	71.2	69.0	5,670	2,826	3,013	2,745
Detroit & Toledo Shore Line	3 mos.	50	1,922	....	1,036	1,828	198	175	12	233	232	88	68	729	1,284	1,145	63.1	62.7	752	253	212	177
Detroit, Toledo & Ironton	3 mos.	464	6,512	....	6,908	5,988	577	601	59	1,365	1,208	555	219	1,977	4,454	3,971	64.5	66.3	2,454	485	1,647	1,434
Duluth, Missabe & Iron Range	3 mos.	518	1,088	....	1,217	933	903	813	183	1,284	1,236	551	48	1,396	4,258	3,851	349.7	412.8	—3,040	320	—3,266	—3,075
Duluth, Winnipeg & Pacific	3 mos.	174	1,912	....	1,913	1,884	217	216	16	175	146	3	....	646	1,080	917	56.4	48.6	833	160	382	569
Elgin, Joliet & Eastern	3 mos.	205	9,379	....	13,116	12,267	987	892	100	2,243	1,895	417	143	5,094	9,491	8,201	72.4	66.9	3,624	1,734	1,124	1,541
Erie Lackawanna	3 mos.	2,914	44,577	3,058	52,876	50,995	5,048	5,192	1,197	9,483	9,135	2,387	1,311	26,052	44,476	43,866	84.1	86.0	8,401	4,500	300	—1,331
Florida East Coast	3 mos.	572	6,553	....	6,676	5,896	935	732	108	978	1,384	357	168	2,119	4,651	4,363	69.7	74.0	2,025	728	533	324
Georgia Railroad	3 mos.	323	1,696	24	1,950	1,963	253	273	28	386	372	105	139	888	1,795	1,773	92.0	90.3	156	131	34	52
Georgia & Florida	3 mos.	Class II as of January 1, 1965																				
Grand Trunk Western	3 mos.	946	14,700	545	16,455	14,871	1,964	1,844	188	2,202	2,261	201	280	7,500	12,716	11,734	77.3	78.9	3,739	1,290	94	—252
Great Northern	3 mos.	8,260	47,586	1,786	52,976	58,401	7,607	6,971	1,005	9,997	9,766	2,796	1,802	23,294	45,836	43,454	86.5	74.4	7,140	4,938	1,593	6,547
Green Bay & Western	3 mos.	Class II as of January 1, 1965																				
Gulf, Mobile & Ohio	3 mos.	2,744	18,166	557	20,042	19,592	2,716	2,506	272	3,958	3,856	1,010	801	7,227	15,657	14,989	78.1	76.5	4,384	1,375	1,852	2,044
Illinois Central	3 mos.	6,461	56,944	5,329	67,378	67,160	8,805	8,840	1,251	12,408	12,843	3,234	1,972	28,063	55,181	54,641	81.9	81.4	12,196	4,837	4,331	4,143
Illinois Terminal	3 mos.	339	1,879	....	2,144	2,098	250	252	22	361	361	77	121	888	1,780	1,788	83.0	85.2	364	171	—127	—114
Kansas City Southern	3 mos.	894	9,486	211	10,831	12,569	840	1,181	160	1,516	1,487	445	343	3,753	6,881	7,205	63.5	57.3	3,950	1,228	1,662	2,308
Kansas, Oklahoma & Gulf	3 mos.	Class II as of January 1, 1965																				
Lake Superior & Ishpeming	3 mos.	135	326	....	372	257	226	161	54	298	242	133	6	221	823	629	221.0	244.9	—451	129	—514	—411
Lehigh & Hudson River	3 mos.	Class II as of January 1, 1965																				
Lehigh Valley	3 mos.	1,048	10,729	....	11,070	11,596	1,128	1,341	266	1,529	1,837	—433	402	5,704	9,483	10,222	85.7	88.1	1,587	980	—549	—516
Long Island	3 mos.	340	2,278	15,945	18,898	18,474	2,832	2,714	297	3,981	4,126	446	151	10,210	18,186	17,752	96.2	96.1	713	1,118	—1,308	—1,043

(Continued on page 96)

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STROMBERG-CARLSON CORPORATION

Railway Age Service Page

REVENUES AND EXPENSES OF RAILWAYS

(Dollar figures are stated in thousands: i.e., with last three digits omitted)

First Quarter Figures of Calendar Year 1965

Name of Road		Average mileage operated during period	Operating Revenues				Operating Expenses										Operating ratio		Net from railway operation	Railway tax accruals	Net Railway operating income	
							Maint. Way and Structures			Maint. Equipment												
			Freight	Pass.	Total (inc. misc.) 1965	1964	Total 1965	Total 1964	Deprec. and Retirements	Total 1965	Total 1964	Deprec. and Retirements	Traffic	Transportation	Total 1965	Total 1964	1965	1964			1965	1964
Louisiana & Arkansas	3 mos.	746	6,255	118	6,790	6,543	703	850	55	872	822	333	281	2,230	4,348	4,333	64.0	66.2	2,442	678	1,052	702
Louisville & Nashville	3 mos.	5,657	57,758	1,308	63,312	61,963	7,637	7,391	1,037	13,541	13,127	5,620	1,698	25,619	52,397	51,299	82.8	82.8	10,916	3,706	6,385	5,471
Maine Central	3 mos.	934	5,734	1	5,885	5,832	977	957	84	1,099	1,055	264	93	1,954	4,479	4,412	76.1	75.6	1,406	466	666	773
Minn., Northfield & Southern	3 mos.	Class II as of January 1, 1965																				
Missouri Illinois	3 mos.	Class II as of January 1, 1965																				
M-K-T Lines	3 mos.	2,904	10,302	52	11,171	12,787	1,592	2,471	352	2,087	2,924	708	515	4,776	9,609	11,676	86.0	91.3	1,562	1,034	—1,108	—1,756
Missouri Pacific	3 mos.	9,177	66,293	1,345	74,517	75,296	9,635	10,145	1,059	12,775	13,056	3,642	1,895	26,669	54,884	55,921	73.7	74.3	19,633	4,805	9,510	9,088
Monon	3 mos.	541	4,282	64	4,636	4,789	428	570	60	721	868	256	250	1,828	3,590	3,781	77.4	79.0	1,046	304	453	368
Monongahela	3 mos.	Class II as of January 1, 1965																				
New York Central	3 mos.	9,844	123,913	11,631	156,947	153,534	16,433	16,128	2,947	27,674	28,574	7,092	3,212	76,733	132,197	128,848	84.2	83.9	24,750	11,945	3,543	3,445
Pittsburgh & Lake Erie	3 mos.	214	8,092	39	8,696	6,780	910	1,245	198	3,173	2,680	1,061	235	2,964	7,864	7,305	90.4	107.7	832	2,619	2,421	2,301
New York, Chicago & St. Louis	3 mos.	Included in Norfolk and Western																				
New York, New Haven & Hartford	3 mos.	1,637	15,789	9,600	29,430	30,108	4,180	4,034	746	5,936	5,956	1,454	607	15,697	28,785	28,557	97.8	94.8	645	2,468	—5,736	—4,377
New York Connecting	3 mos.	Class II as of January 1, 1965																				
New York, Sus. & Western	3 mos.	Class II as of January 1, 1965																				
Norfolk & Western	3 mos.	7,578	131,505	1,071	139,405	132,084	13,047	12,704	2,401	21,154	20,197	8,111	3,540	50,030	93,191	87,962	66.8	66.6	46,214	17,076	26,519	23,114
Norfolk Southern	3 mos.	593	2,037	....	2,091	2,064	390	350	60	344	344	136	150	748	1,858	1,803	88.8	87.3	233	155	—15	—8
Northern Pacific	3 mos.	6,777	39,113	1,140	43,167	44,396	6,447	6,211	1,001	8,779	8,830	2,935	1,454	19,388	39,204	37,611	90.8	84.7	3,963	4,388	913	3,180
Northwestern Pacific	3 mos.	328	965	....	981	2,682	227	456	43	116	127	5	20	424	850	1,432	86.6	53.4	132	198	—408	249
Pacific Electric	3 mos.	316	3,487	....	3,913	3,961	536	537	76	103	87	8	61	1,915	2,908	2,831	74.3	71.5	1,005	521	—329	—178
Pennsylvania	3 mos.	9,632	169,000	20,065	215,272	208,070	20,402	19,694	4,314	33,944	36,721	8,131	3,333	101,365	171,203	167,067	79.5	80.3	44,069	14,392	7,832	8,446
Penn-Reading Seashore Lines	3 mos.	341	1,770	77	1,962	1,771	399	482	100	391	422	76	13	1,425	2,362	2,400	120.4	135.5	—399	186	—1,073	—1,200
Piedmont & Northern	3 mos.	150	1,514	....	1,568	1,460	127	121	17	102	106	29	115	324	801	767	51.0	52.5	768	348	225	172
Pittsburgh & West Virginia	3 mos.	Included in Norfolk and Western																				
Quanah, Acme & Pacific	3 mos.	Class II as of January 1, 1965																				
Reading	3 mos.	1,276	22,292	1,444	25,427	23,566	3,455	3,037	568	4,779	4,944	1,627	615	11,026	21,387	20,889	84.1	88.7	4,040	1,913	948	—664
Richmond, Fred. & Potomac	3 mos.	118	4,346	1,133	6,541	6,271	532	510	99	961	945	220	95	2,375	4,446	4,369	68.0	69.7	2,095	1,028	741	643
St. Louis-San Francisco	3 mos.	4,676	31,538	253	34,022	31,232	4,836	3,609	649	4,909	4,812	1,908	1,286	12,652	25,980	24,486	76.4	78.4	8,043	3,229	3,500	2,837
St. Louis Southwestern	3 mos.	1,554	21,746	1	21,957	20,452	1,690	1,670	206	2,914	2,692	1,388	608	6,825	12,811	12,011	58.4	58.7	9,146	3,858	5,364	4,165
San Diego & Arizona Eastern	3 mos.	Class II as of January 1, 1965																				
Savannah & Atlanta	3 mos.	Class II as of January 1, 1965																				
Seaboard Air Line	3 mos.	4,123	38,092	3,831	45,951	44,632	6,031	6,112	751	8,267	8,125	2,614	1,688	17,059	35,166	34,115	76.5	76.4	10,785	4,547	4,887	4,644
Soo Line	3 mos.	4,688	18,097	49	18,691	21,235	2,722	2,449	323	2,754	3,358	820	694	7,942	15,074	15,533	80.6	73.1	3,617	1,520	997	2,856
Southern Railway	3 mos.	6,254	66,553	1,733	73,086	71,400	7,973	9,486	1,078	12,440	12,097	4,027	1,789	23,903	50,657	50,083	69.3	70.1	22,430	7,587	10,403	10,832
Alabama Great Southern	3 mos.	327	4,103	96	4,723	4,144	633	661	106	896	884	266	156	1,586	3,651	3,416	77.3	82.4	1,072	352	467	352
Cinn., New Orleans & Tex. Pac.	3 mos.	337	8,804	153	9,718	9,940	1,116	1,228	223	2,429	2,375	900	301	3,214	7,843	7,385	80.7	74.3	1,875	697	1,345	1,745
Georgia, Southern & Florida	3 mos.	396	2,025	60	2,301	2,210	388	384	36	203	239	30	58	712	1,540	1,536	66.9	69.5	761	102	89	112
New Orleans & Northeastern	3 mos.	203	2,503	77	2,817	2,862	481	470	91	691	705	309	102	851	2,411	2,331	85.6	81.5	406	234	250	377
Southern Pacific	3 mos.	11,498	166,681	4,171	179,675	175,929	20,886	19,108	1,828	36,316	35,406	11,953	3,395	71,418	140,656	131,711	78.3	74.9	39,019	17,362	16,423	21,061
Spokane International	3 mos.	Class II as of January 1, 1965																				
Spokane, Portland & Seattle	3 mos.	936	8,280	161	9,033	8,660	1,194	1,217	173	1,387	1,425	403	122	3,529	6,669	6,476	73.8	74.8	2,365	964	992	892
Tennessee Central	3 mos.	Class II as of January 1, 1965																				
Texas & Pacific	3 mos.	1,847	15,759	335	17,704	18,291	2,442	1,929	253	2,822	2,662	920	640	7,058	13,977	13,119	79.0	71.7	3,727	943	1,210	1,816
Texas Mexican	3 mos.	Class II as of January 1, 1965																				
Toledo, Peoria & Western	3 mos.	239	1,832	....	1,940	1,950	185	251	20	200	184	44	160	624	1,320	1,332	68.1	68.3	619	203	190	162
Union Pacific	3 mos.	9,571	112,428	4,348	126,472	126,412	14,152	14,477	1,675	25,352	25,610	9,293	3,833	48,054	98,774	96,789	78.1	76.6	27,698	14,134	10,486	8,539
Wabash	3 mos.	Included in Norfolk and Western																				
Ann Arbor	3 mos.	294	2,117	....	2,137	1,756	236	235	222	2379	2381	120	52	1,133	1,864	1,680	87.2	95.7	274	165	—98	—136
Western Maryland	3 mos.	872	11,869	....	12,417	12,022	1,678	1,573	177	2,964	2,850	981	386	4,300	9,935	9,661	80.0	80.4	2,483	1,431	1,913	1,775
Western Pacific	3 mos.	1,184	12,486	399	13,181	12,010	1,622	1,638	266	2,261	2,202	745	797	5,046	10,911	10,398	82.8	86.6	2,271	912	1,121	716

The move to 'world' transport

"Transportation is no longer confined to the domestic market," Canadian Pacific President R. A. Emerson recently told members of the Advertising and Sales Executives Club in Montreal. "As markets for transportation have become international, transportation, itself, has become international in scope."

He said that Canadian Pacific was one of the first international transportation companies, "because the railway, when it was built, had to create its markets." CP's diversified enterprises now include land, sea and air services.

"Change is not only the order of the day, but successful adaptation to it is the determining factor in the future success of transportation companies," he said.

● **Strong competition.** Canadian Pacific, he pointed out, operates the only major, privately-owned railroad in the world outside of the U.S. It not only faces stiff competition in markets and operations which are international in scope, but CP's competitors are frequently owned wholly or partially by the state.

"While the economic rules of the game are not the same, and corporate policies and objectives differ widely, Canadian Pacific has successfully met these challenges as an international carrier based in Canada, and controlled by Canadians," he said.

"In the case of our 85,000-mile network of integrated land, sea and air services serving five continents, the bulk of selling is done on the basis of in, to and through Canada. For example, most of the rail passenger business originates in Canada, about one-third of railway freight revenue comprises traffic destined to or originated outside Canada; and by far the greatest proportion of airline and shipping traffic is international."

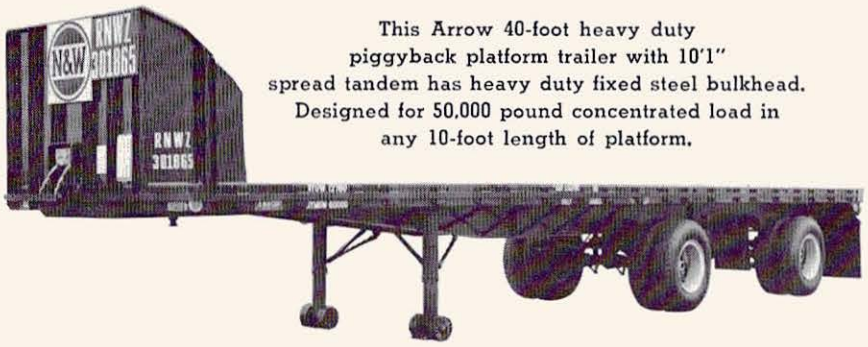
Emerson said selling transportation today both at home and abroad calls for more sophisticated sales efforts.

"An international market calls for international standards. We must think as well as act internationally, if we are to expand our foreign business."

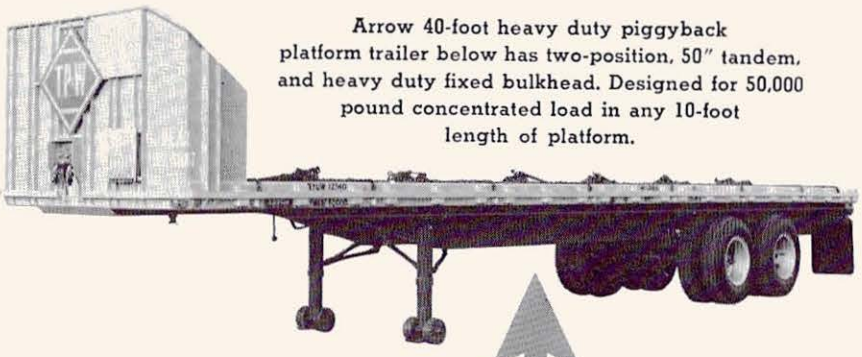
More and more, he believes, transportation is becoming specialized, with a service tailored to meet growing specialized marketing needs. ■

REALCO concentrates the load on Arrow!

Arrow piggyback platform trailers are designed for a 50,000 pound concentrated load in any 10-foot length of platform. That's just one of the reasons REA Leasing Corporation uses Arrow piggyback trailers for shipments via such railroads as Toledo, Peoria and Western . . . and Norfolk and Western. Arrow provides efficient use of high capacity materials, longer useful life, greater payloads, and less empty weight for more profitable hauling.



This Arrow 40-foot heavy duty piggyback platform trailer with 10'1" spread tandem has heavy duty fixed steel bulkhead. Designed for 50,000 pound concentrated load in any 10-foot length of platform.



Arrow 40-foot heavy duty piggyback platform trailer below has two-position, 50" tandem, and heavy duty fixed bulkhead. Designed for 50,000 pound concentrated load in any 10-foot length of platform.

Arrow has the capacity to meet special requirements for any piggyback trailer.

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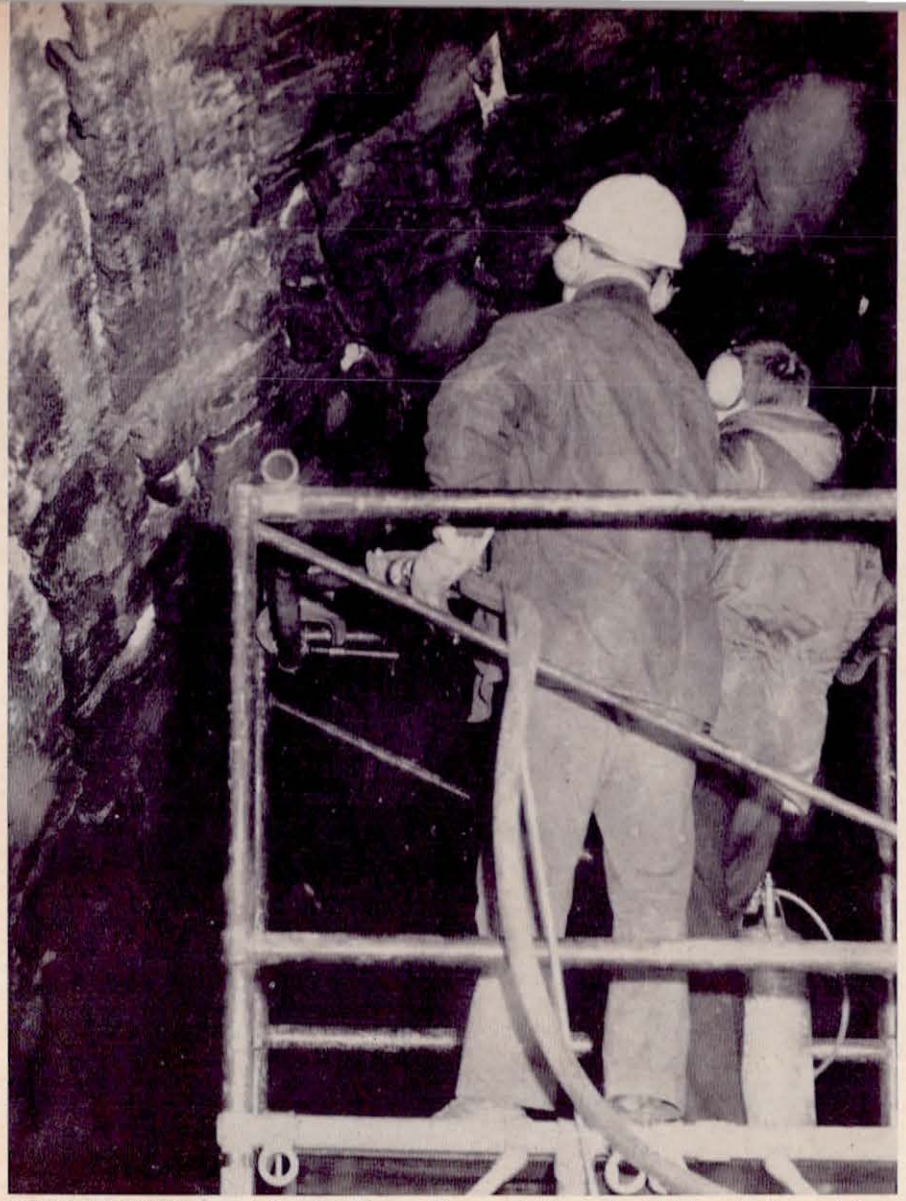


TUNNEL LINING is cut by directing a flame, discharged at high velocity and temperature, at the rock surface. Thermal shock causes small pieces to flake off.

Flame burner used to enlarge tunnel

A new rock-spalling technique has been used, for the first time on a railroad, to cut back the masonry-arch lining of a tunnel.

A quarrying process employed for the first time in the railroad industry has enabled the Boston & Maine to solve a clearance problem in its masonry-lined tunnel at Bellows Falls, Va.

The tunnel is on the road's Connecticut River line which connects Canadian points with the New Haven for New York and points south. Newsprint is one of the important commodities moved over the line. This brought about the use of cars built to the specifications contained in the Plate C Equipment Diagram incorporated about a year ago in the Official Railway Equipment Register.

Such cars required more clearance than was provided by the Bellows Falls tunnel, which was built in 1851. The restrictive clearance was all at the north end of the masonry-arch tunnel. There, for a distance varying between 20 and 30 feet, a minimum of 6 inches of additional clearance was necessary. Unless this restriction was removed, the B&M would be at a serious disadvantage in its ability to remain competitive in handling the newsprint traffic.

• **Floor could not be lowered.** The simplest solution would have been to lower the floor at the north portal. B&M engineers found that was not feasible because of a river that flows beneath the track at the northern end of the passageway.

The masonry lining of the tunnel was comprised of mica schist blocks 14 inches thick. It was decided, therefore, that 6 inches could be removed from the lining surface without impairing the stability of the tunnel. The conventional method of chipping away the lining, using air hammers and hand tools, did not appeal to the B&B engineers. The method was considered to be too costly and would involve weeks of labor.

Engineers of the RoKeX Division of the H. E. Fletcher Co. of West Chelmsford, Mass., were consulted because the firm had developed a process for cutting granite with flame. The B&M was satisfied that the process was applicable to its tunnel problem and retained the firm to carry out the work. Kennard Fletcher, vice president of the quarrying company, had charge of the field work.

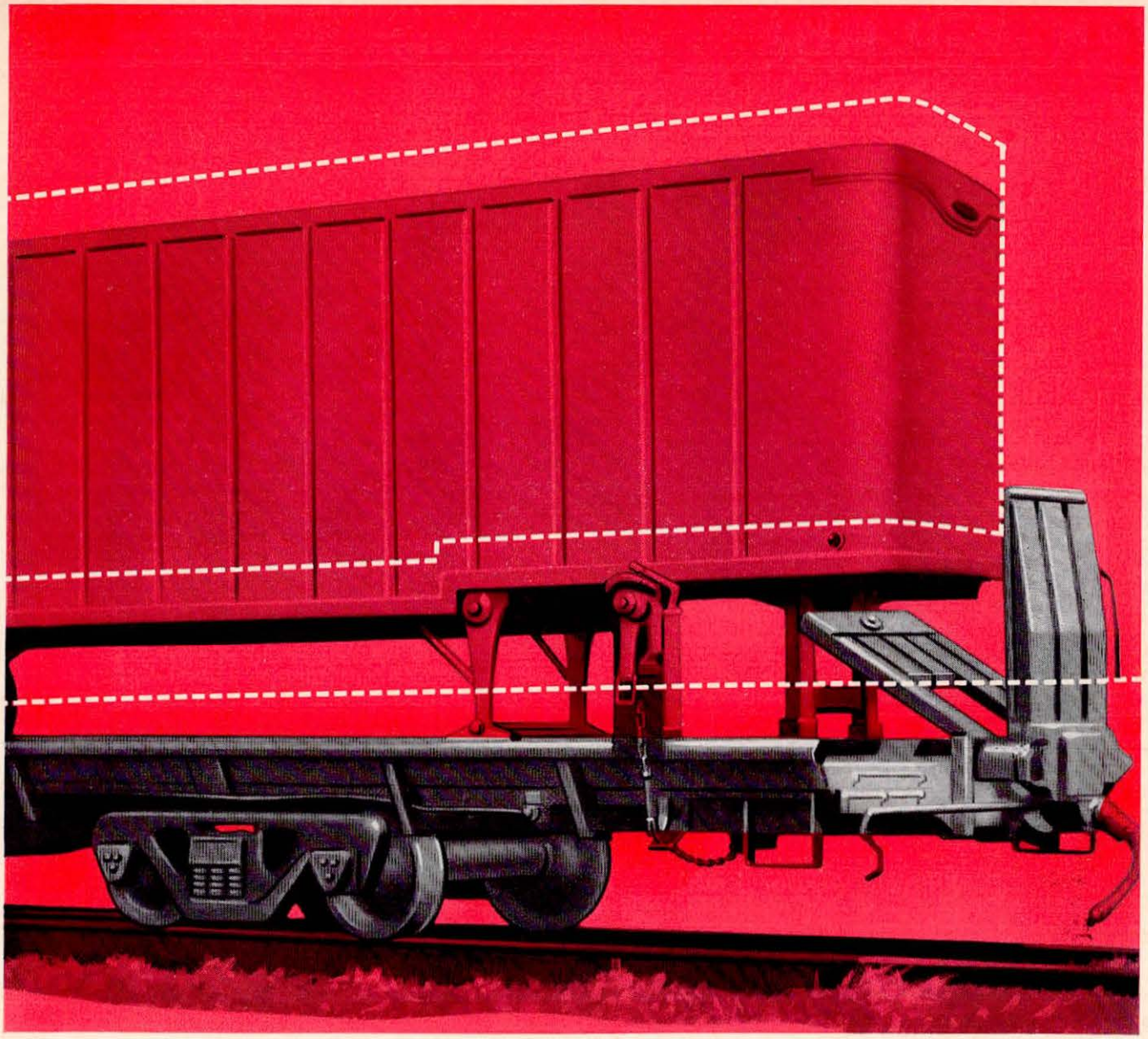
• **How the system works.** The stone-cutting process is effected by playing a flame discharged from a burner at high velocities and temperatures on the rock surface. Heat in the range used imparts a severe thermal shock to the rock surface. That causes a localized spalling action by which small, saucer-shaped pieces flake off. The structural integrity of the rock thus shaped is not impaired.

The RoKeX burner operates with standard No. 2 fuel oil and compressed air. The fuel oil is atomized, mixed with air in a combustion chamber and, upon combustion, the effluent gases are discharged through an output nozzle.

An operator and helper carried out the flame-cutting and completed the job in seven flame-hours of operation. During the cutting operation, a staging platform was erected on a flat car, which was moved as the operator worked on the tunnel ceiling. This permitted movement of the equipment out of the tunnel to a siding when clearing the track for trains.

W. K. Hale, assistant general manager-engineering of the B&M, says the RoKeX process "has demonstrated excellent adaptability to railroad use." The results on the B&M, he adds, were "fast, clean and up to our highest expectations."

"If this problem had not been met, the B&M could have suffered diversion of newsprint traffic because the only alternative to the shippers would have been to re-route movements so as to by-pass the Bellows Falls tunnel." ■



ASF helps raise railroad profits

—in this case by lowering car heights

The first AAR approved low clearance truck for piggyback service was created by ASF. It took 10 inches off car heights.

It made possible triple-deck auto rack service—and opened up thousands of miles of track not previously available to higher capacity freight cars. It provided the dependable ASF Ride Control® to coddle and protect the lading.

Today, of the approximate 7,000 car sets of low clearance trucks in railroad service, ASF has supplied more than 6,000. That's over 85%!

For any need, ASF works right with the railroads it serves. How can we help you? Tell us. We are ready. Ask your nearest ASF Representative, or write American Steel Foundries, Incorporated, 1005 Prudential Plaza, Chicago, Illinois, 60601.

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CNJ goes to the governor

The financially hard-pressed Jersey Central has asked the state's chief executive and the legislature to give the road more aid—some $5.6 million—to keep the commuter trains running.

Commuters on the Jersey Central last week were anxiously keeping their ears tuned to any news coming out of the state capital at Trenton. What they were hoping to hear was that Gov. Richard Hughes and the Legislature had moved on an emergency appeal by the railroad for a last-minute appropriation of funds to keep the trains running.

As it turned out, the Legislature turned a deaf ear to the railroad, adjourned until Nov. 8. But it did set up a committee to study the state's commuter crisis—and may have to call a special summer session to resolve it.

CNJ has been asking the state to pay the equivalent of 80% of the road's projected 1965 commuter losses of $7 million. This would amount to $5.6 million.

"I have repeatedly, over the last six months, pointed out to the Governor and his administration that, without a minimum of $5.6 million in passenger contract payments from the state, the CNJ will not be able to survive the year," CNJ President Perry M. Shoemaker said.

He said the railroad will not sign an inadequate passenger service contract that "can only serve to drive us into bankruptcy." Last year, CNJ had commuter losses of $6.5 million and received state aid, under a contract, that amounted to 43% of the commuter deficit. The railroad says increased aid is needed "if we are to end the year by paying our obligations, including state taxes, and have enough working capital left over to keep operating."

• **Giving and taking.** CNJ's big gripe with New Jersey is that it takes away more than it ever gives to the railroad.

"Over the years," says President Shoemaker, "the State of New Jersey, through confiscatory taxes and losses from required passenger operation, has milked the Jersey Central dry." He said there are reasons why the contract program has not worked like a magic wand:

"For instance, a railroad like CNJ, while in 1964 receiving $178 in contract payments from the state for every passenger carried, returned to the state $235 for every passenger carried in property and franchise taxes. All this transfer of dollars still left the railroad with losses of $346 for every passenger carried."

Shoemaker warned that unless the state funds are made available immediately, "all the dollars and effort that have been expended by New Jersey to date will be wasted."

• **Continuing losses.** Over the past seven years, CNJ has racked up losses of some $39 million on commuter operations. The road carries 12,000 people every weekday, involving about 24,000 passenger trips.

"The Central Railroad Company of New Jersey has no wish to cease serving its commuter customers," Shoemaker says. "We realize that we are rendering an important public service and wish to continue to do so. We have made every effort to patch up worn-out equipment, to replace Coast Guard condemned ferries, and to cooperate with any and all plans designed to save commuter service."

• **Back against the wall.** CNJ is especially troubled by the lack of favorable developments in Trenton because it feels it has exhausted all possibilities of raising funds to keep operating.

• **Nobody up there understands.** Over the past few months there has been a steady flow of telegrams back and forth between President Shoemaker and New Jersey State Highway Commissioner Dwight R. G. Palmer. Railroads in the state come under the jurisdiction of the Railroad Division of the State Highway Department.

In the most recent exchange, Commissioner Palmer said the state could "see no possibility of complying" with the CNJ's request for increased state aid. "You apparently wish to shift the entire burden of your operating deficit on the State."

After reading the telegram, Shoemaker said he was convinced of the state's lack of understanding of the realities of the CNJ situation. "It is specious to state that the Central is apparen ly requesting to shift the entire burden of its operating deficit to the state. We are not even asking for our entire passenger loss."

He said the situation boils down to this: if the state fails to come through with "adequate participation in the losses we incur in rendering the service, we will, in a few short months, just plain run out of the dollars necessary to continue it." ■

NEW FLAME TOOL CUTS ROCK REMOVAL COSTS

Costs of removing rock from roof of a Boston & Maine railroad tunnel were substantially reduced by using a new rock-cutting tool.

Fed by compressed air and inexpensive fuel, the RoKeX flame-cutting tool produces a high velocity, high temperature flame, by which the rock flakes off in small chips (no melting, no burning). This "spalling" action is rapid and continuous in hard rock. After treatment the remaining rock has a clean, smooth, unshattered surface.

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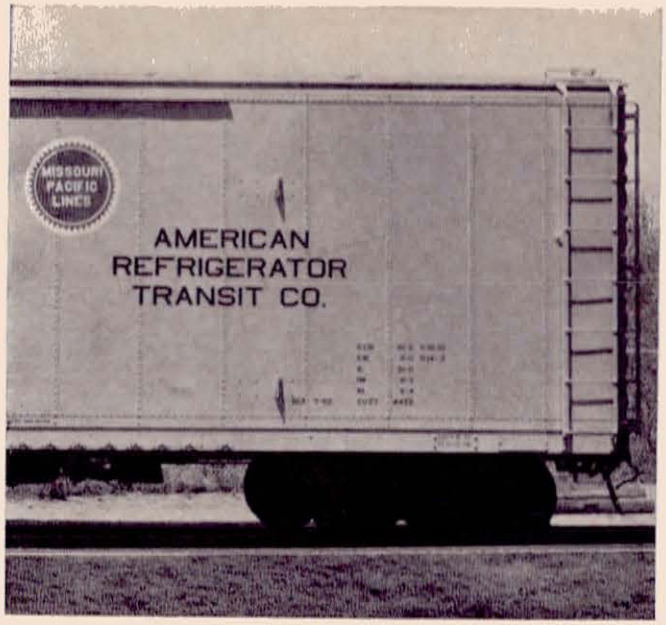

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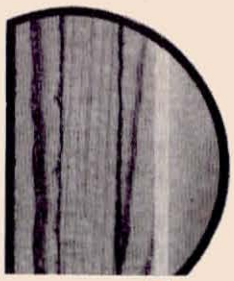

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Railroad gains: An 'inside' job

What's behind the resurgence of railroad fortunes in general—and in the East, in particular? Partly responsible, concedes the Pennsylvania's David C. Bevan, are such outside forces as a booming economy, tax concessions on the part of the federal government, and some improvement in the regulatory climate.

"But most of the new outlook," PRR's finance committee chairman told the Financial Analysts Federation at Philadelphia, "has come from within the industry—from a new determination on the part of the railroads to get their houses in order and to provide and market the kind of transportation services they can perform best and which shippers just can't help buying."

• **Red to black.** Financially speaking, the most dramatic change has come in the East, Bevan noted: "In 1961 the railroads of the East ran at a deficit. In 1962, even the Pennsylvania reported a deficit of $3.2 million on a parent company basis and earnings of only $12.5 million on a consolidated basis. . . . By contrast with the early sixties, the eastern roads in 1964 earned $176 million, their best showing since 1957. The Pennsylvania earned $29 million and consolidated earnings were $52 million. On top of that the Pennsylvania has made a good start towards still better results in 1965."

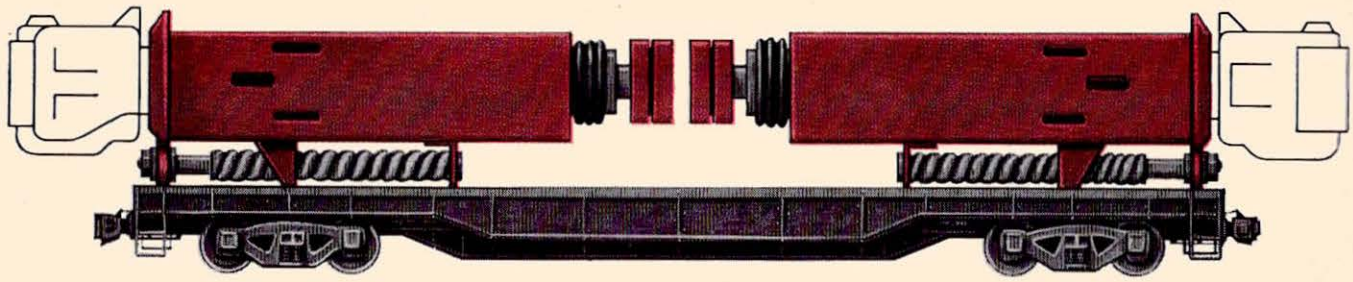
Behind the Pennsylvania's revitalization, said Bevan, lies "a carefully coordinated plan for developing the full potential of our company."

• **Cost cutting.** A fundamental step in restoring earning power has been a campaign to trim operating costs "to make our railroad more efficient and economical," he said. He mentioned, for example, PRR's electronic data processing system—coordinating computer centers at Philadelphia, Pittsburgh, Chicago and Altoona—which "is producing economies all through the company." The new car-reporting system alone, he said, last year helped to reduce car rentals paid to other railroads by $2 million.

Additional savings—about $2.5 million a year—have been produced by an administrative streamlining that saw nine regions reduced to three, he said.

• **Wages.** Elimination of firemen

FREIGHTMASTER



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(*pint-size cost*)

FreightMaster End-Of-Car Cushioning Units offer more protection per dollar invested than any other cushioning device available. □ Each set of FreightMasters delivers a combined total of 20″ of available stroke length – 10″ per unit. And this doesn't include the important and effective cushioning length afforded by the movement of the struck car itself (as proved by extreme slow motion photography of impact tests). □ Pint size cost? Yes! A claims-reducing, near-indestructible set of FreightMasters costs less because it is designed to install so simply that auxiliary equipment such as standard draft gears, auxiliary sills, and related components, are not required. And periodic maintenance is practically nil (you don't *ever* add hydraulic fluid!). Write today for the full FreightMaster story. FreightMaster – a division of Halliburton Company. 424 W. Vickery Blvd., Fort Worth, Texas. (817) ED 5-3046. In Canada, contact Hawker Siddeley Canada Ltd., Montreal.

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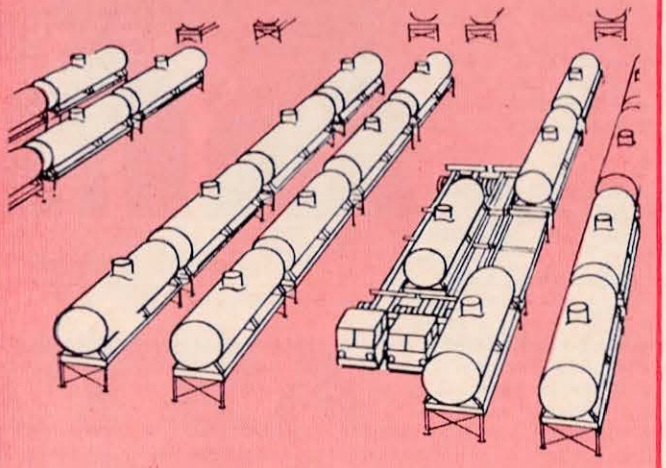
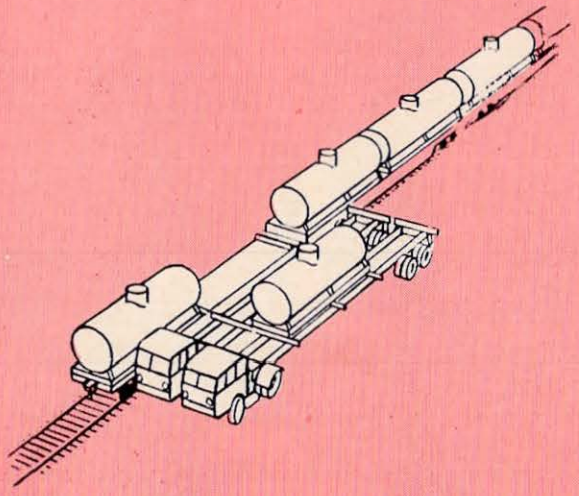
WITH THE COMPLETELY MOBILE AND

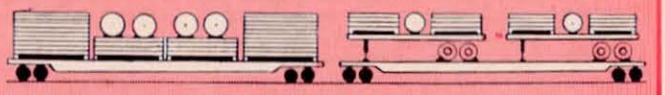
1 DRY BULK CHEMICALS OR CEMENT HANDLING



■ Mobile container storage terminals move to follow markets . . . replace expensive fixed terminals . . . reduce operating and trailer delivery costs. 20 ft. containers stored on metal racks eliminate dust and contamination problems . . . containers can be delivered to job site and left or be blower unloaded.



2 75% BIGGER PAYLOADS ON STEEL SHIPMENTS OVER PIGGYBACK



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140,000 lb. PAYLOAD	**80,000 lb. PAYLOAD**

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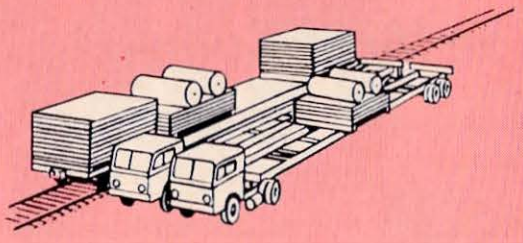
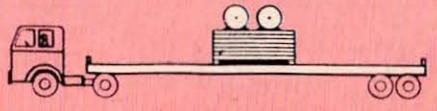


Low-Cost Delivery on Frame Trailer



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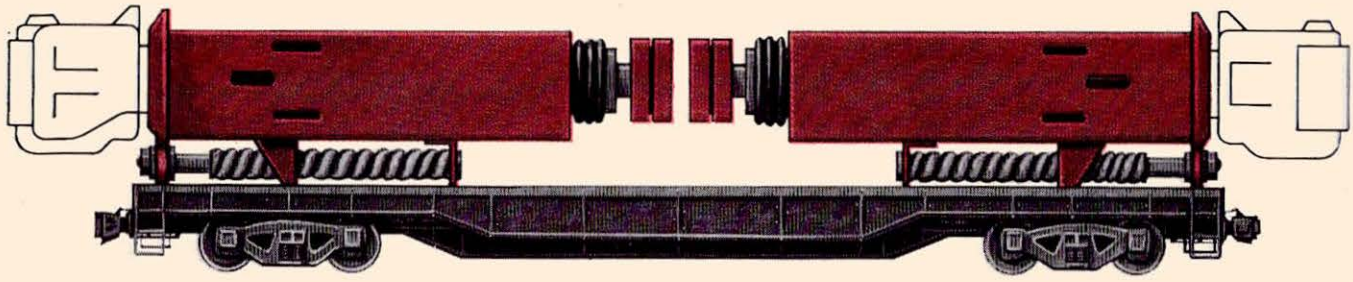

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(*pint-size cost*)

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from freight locomotives brought PRR net savings of $3 million in 1964 and "this figure should rise to somewhere between $6 million and $8 million this year."

• **New equipment.** A major factor in the PRR's improving position, said Bevan, is management's "tremendous commitment in the re-equipping of our railroad.

"Our capital investment program for the three years 1963, 1964 and 1965 totals $437 million. The $220 million program for this year alone is about one-seventh of the capital expenditures forecast for the entire railroad industry."

• **New services.** Along with equipment and plant modernization, said the PRR executive, have come new services which are being aggressively merchandised. He mentioned four:

(1) TrucTrain (piggyback) which produced revenues of $35.5 million last year and is growing at the rate of about 6% a year.

(2) Movement of new autos in multi-level rack cars, which brought in revenues of $9.5 million in 1964—a 61% increase over the previous year.

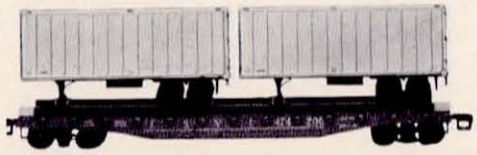
(3) Auto-parts box cars which are now making daily deliveries to eight on-line assembly plants.

(4) Unit trains, now operating at the rate of around 400 a month ("By the end of this year, we expect to be operating about 500 a month"). Originally limited to coal movements, unit trains are now being used for moving iron ore, grain, gravel and sand.

• **Problems remain.** Still unlicked, said Bevan, is the problem of the passenger-service deficit, which amounted to $34.9 million for the Pennsylvania in 1964. While steps are being taken on various government levels which arouse hope for easement of the road's commuter problems, he said, the intercity aspect remains to be dealt with. He said the PRR "hopes to have a favorable announcement in the near future" with respect to the so-called Pell Plan for high-speed service in the Boston-New York-Washington corridor.

Another major requirement "if the Pennsylvania and the eastern railroads generally are to attain their full usefulness and earning power," said Bevan, is swift consummation of the PRR-New York Central merger.

Bevan left the analysts with the hope that the railroads will be providing them, in the years ahead, with "increasingly interesting figures to analyze and interpret. Nice big figures with dollar signs in front and impressive strings of zeros behind. And all black." ■



Cold facts about piggybacks

(Just 3° off and 30,000 pounds of meat is less saleable)

One piggyback reefer holds over 30,000 pounds of refrigerated meat. That cargo is worth a lot of money. Keep it within 2° tolerance or you lose appearance and saleability at the market.

Berman leases 500 piggyback reefers to one railroad alone. And most of them have to make second day delivery to market. That's 15,000,000 pounds of meat in perfect condition. Takes over a million trouble-free refrigerated hours a month to do it.

Superior preventive maintenance is the key. Berman piggyback mechanics are more than just truck experts. They're refrigeration experts too. We send them to refrigeration school—give them the most modern equipment available. Their program: spot trouble before it starts.

There are 52 refrigeration and mechanical checkpoints on a piggyback reefer. And a Berman expert doesn't miss a one. Scientific oil analysis. Precise calibration of the thermostat. He checks the walls, floors, and ceilings for punctures. Even checks the tires, lights, and brakes.

And every so often Berman even puts the trailers through their automatic piggyback wash. Because appearance is part of performance in the food business.

If that's the kind of service you'd like for your piggyback fleet, write Carl Crumrine, President, Berman Leasing Company, Pennsburg, Pa.

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New commuter service for Toronto

Metropolitan Toronto, which has frequently affirmed and demonstrated the wisdom of relying on rail rapid transit for mass movement of people in the city, will soon be served by an entirely new rail commuter service reaching suburban areas. Just over a decade ago the Toronto Transit Commission began to operate Canada's first subway for which four different extensions have since been authorized.

● **Another Canadian "first."** In late 1966 or early 1967 Toronto will mark another Canadian "first" when the Canadian National begins to operate a provincially financed high-frequency commuter service over a 52-mile segment of its east-west main line along Lake Ontario. The operation serving metropolitan Toronto will be equipped and subsidized by the Province of Ontario.

Premier John Robarts told the Ontario Parliament that, if people take to commuter rail services, it could result in considerable savings on highway construction. Even with heavy expenditures on freeways and highways along the Lakeshore area, he warned, flexibility of movement could become increasingly restricted if the automobile is the only method of travel in general use.

● **Less highway building.** The new trains will serve the Lakeshore corridor's present population of nearly 600,000 which is to swell to 1 million by 1980. It is estimated that the 15,000 daily riders of the projected trains would, if they were to commute in private automobiles, require the building of four additional freeway lanes. Premier Robarts pointed out that, if all those the line is capable of carrying (up to 12,000 per hour) were to drive during rush hours, ten new lanes would be needed, W. Allen, head of the Metropolitan Toronto government, called the commuter service another step in achieving a truly balanced transportation program for the area.

The Government will spend $7.5 million for ten diesel locomotives, 48 passenger cars seating 125 passengers each, new station facilities, and right-of-way improvements. CN will be paid an estimated $3.5 million annually to operate the service; provincial Government will recoup $1.5 to $2 million annually from fares. The service has been termed a "pilot project" which will require three years to assess and could well lead to establishment of similar operations over other lines radiating from Toronto's Union Station. The Transportation Study Committee has found that up to 45,000 passengers daily might eventually be moved over the system.

● **New yard a factor.** Donald Gordon, CN president, hailed the new service and pointed out that its establishment could not even have been considered if the road still had the congestion that has been eliminated with transfer of the bulk of its downtown freight operations to the new Toronto Yard northwest of the city (RA, May 24, p. 15). Presently, the CN operates two commuter round trips from the west into Toronto weekdays; has no suburban service east of the city.

Projected new operation, in addition to rush-hour service, will involve hourly runs between Oakville, 21 miles west of Toronto, and a new station, Dunbarton, 19 miles east of the city. ■

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DENVER & RIO GRANDE WESTERN RAIL/ROAD

N&W breathes sweet smell of success

Unifying six railroads under one banner isn't easy, but Norfolk & Western is working out the kinks, setting new records.

Seven months after its unification with five other railroad properties, Norfolk & Western, as predicted, is barreling on toward the best year in its history.

At this month's annual stockholders' meeting N&W President Herman H. Pevler forecast highest per share earnings ever for 1965. The previous N&W high—$9.07 per common share—was in 1963.

Throughout the giant 14-state system, from Norfolk, Va. to Omaha, Neb., business, in the words of President Pevler, "is extremely good."

Reflecting the growing prosperity of the road were these recent announcements:

—N&W will spend $20 million for road and yard improvements, including a $13.5 million electronically operated retarder classification yard at Bellevue, O. Also, a new yard at East St. Louis, Ill., to replace separate area yards formerly used by Nickel Plate and Wabash.

—Centralized traffic control for 145 miles of line between Fort Wayne, Ind., and Danville, Ill.

—The railroad will spend $93 million for 5,888 new freight cars and 67 diesel locomotives.

● **Everything's coming up roses.** Last Oct. 16, when N&W took over the five railroads, it paid out $35.7 million—$27 million for the Sandusky Line to link N&W with the Nickel Plate and Wabash, $2 million for the Pittsburgh & West Virginia, and $6.7 million for Akron, Canton & Youngstown stock. Despite this heavy spending, working capital at the end of December amounted to $84.2 million, and at the end of March it stood at $87.8 million. As of April 30, N&W had cash and temporary security investments of $146 million.

"In many areas," says President Pevler, "we are blazing a new trail. There were no bench marks by which to measure our performance, nor were there any guidelines to assist us in many of our problems.

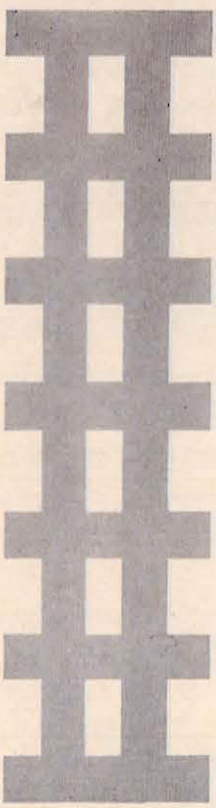
"We have made mistakes and undoubtedly we will make more. But we try to recognize our mistakes when they occur and take prompt steps to remedy them. We have had organizational and some personnel problems. We have moved rapidly to correct them, and I believe we are now in good shape in both of these respects."

One of the biggest problems that N&W experienced in unifying the six properties "was welding all of the people into a well-coordinated organization," he said.

"We had put together two different types of railroad properties. The former N&W was primarily a coal hauling railroad, with a small percentage of scheduled freight trains, while the Wabash, Nickel Plate and P&WV were all primarily merchandise railroads, with heavy emphasis on competitive service. In addition, several of these properties had been competitors. Their traffic salesmen and their operating personnel had been trained in different patterns and varying procedures for many years. Our unification required these people to take a new look at the way they approached their work. In fact, the possibilities and opportunities made possible by the merger required what amounts to the re-education of all employees who represent this new company in any capacity. For the most part, the attitude towards this merger on the part of all the people affected has been excellent, but much had to be done and still has to be done by careful handling and proper education to create a constructive attitude on their part towards their new company."

● **A traffic switch.** Among the significant effects of merger is this: general merchandise traffic now accounts for about 60% of the road's traffic revenues, compared with 30% on the former coal-oriented N&W. The switch in traffic emphasis is mainly due to the heavy merchandise tonnages carried by the former Nickel Plate and Wabash.

The giant consolidation has increased N&W employment from 13,755 to 32,064. And the road now moves 603 freight trains every day, compared to 244 previously. This year the road expects to hit new highs in coal traffic and automobile rack-car movements. ■



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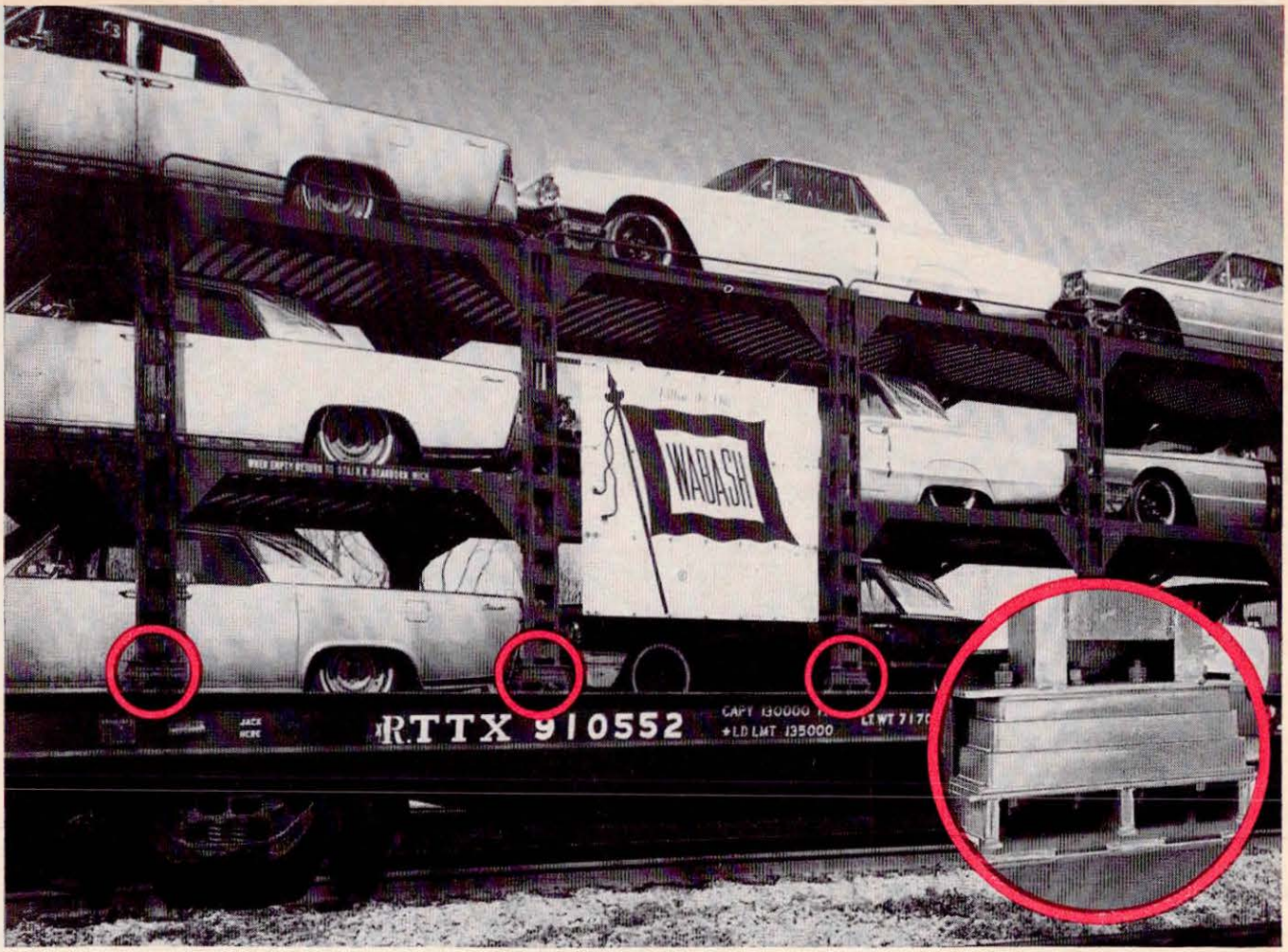

22 Lord-developed shock mountings are used on each auto rack by Paragon Bridge & Steel Co.

Dyna-deck rubber mountings give all-direction, all-weather shock protection

Shock can come from any direction, in any phase of railroad operation, at any time. This is why Lord Dyna-deck mountings are engineered for all-around, continuous cushioning.

Leading auto rack builders have proved these rugged mountings to be essential components, even on cars with cushioned underframes. But auto racks are just one type of application. Dyna-deck systems protect both lading and car superstructures wherever you need these benefits of *rubber with a backbone of steel:*

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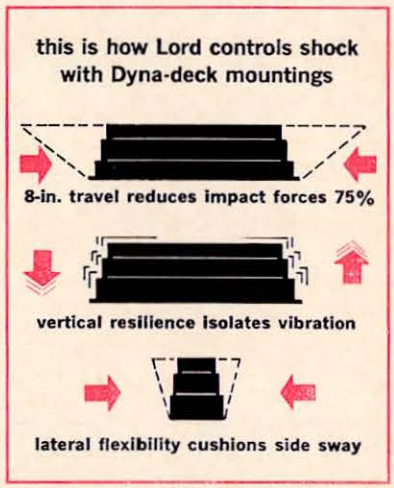
6. Immunity to resist weather and all other environmental conditions.

Dyna-deck mountings are only one of many Lord-engineered rubber products that have proved their ability to protect lading and reduce maintenance. Our bulletin, "Shock Control for Railroads", describes others. Lord Manufacturing Company, Division of Lord Corporation, Erie, Pa. 16512. Field Engineering Offices in principal cities. In Canada: Railway & Power Engineering Corp., Ltd.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vertical resilience isolates vibration
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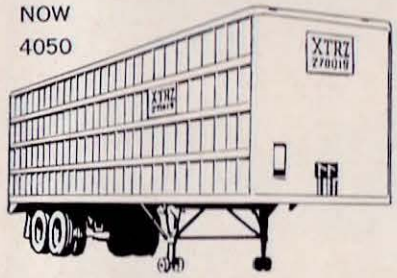

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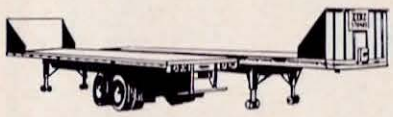

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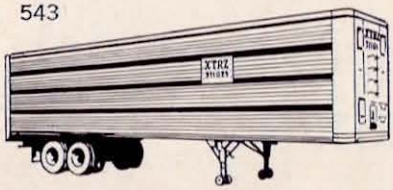

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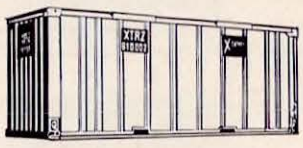

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Edward T. Hurley
CN

D. W. Sharp
C&O—B&O

William J. Dixon
RI

John B. Buffalo
RI

PEOPLE IN THE NEWS

ALTON & SOUTHERN.—**Paul H. Mitchell,** commercial agent, East St. Louis, Ill., appointed general agent, Memphis, Tenn., succeeding **Harold A. Soeker,** who retires June 1 after 42 years of service.

CANADIAN NATIONAL.—**Edward T. Hurley,** chief of technical research, Montreal, appointed assistant vice president of purchases and stores.

Dr. Peter Vaughan, assistant chief medical officer, Montreal, promoted to chief medical officer, succeeding **K. E. Dowd,** retired.

J. M. Provost, assistant to manager, Quebec Area, appointed assistant to vice president and general manager, St. Lawrence Region, Montreal, succeeding **J. F. M. Huneault,** named operations manager, Quebec Area, Quebec, to replace **J. D. Houde,** assigned to special duties.

A. J. Gillies, industrial engineer, Research and Development, appointed assistant manager customer research services, Great Lakes Region, Toronto. **D. R. Harnett,** acting regional rules supervisor, appointed regional rules supervisor, Great Lakes Region.

W. H. Cyr, chief mechanical engineer, transportation and maintenance, Equipment Branch, appointed assistant to manager, Montreal Area.

CHESAPEAKE & OHIO—BALTIMORE & OHIO.—**D. W. Sharp,** manager financial planning services, C&O, Cleveland, appointed assistant to vice president there for C&O-B&O. **A. M. Link,** manager financial planning services,

DOOR-TO-DOOR WITH PIGGY BACK

Great Northern's coordinated rail-truck services move freight fast!

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RI

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Bradford L. Schoech
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Henry W. Metz
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William J. Taylor
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Edward F. Wilkinson
RI

B&O, Baltimore, appointed to that position on both C&O-B&O.

L. F. Grabowski, auditor of capital expenditures, C&O, Huntington, W. Va., will serve in that capacity for C&O-B&O. **W. E. Paynter,** assistant auditor of capital expenditures, B&O, will have administrative responsibility for this accounting function on the B&O, reporting to Mr. Grabowski on matters of policy and coordination planning. **M. E. Good,** director of freight claims, B&O and B&O Chicago Terminal, will hold that position on C&O-B&O, Baltimore. **R. R. Stant,** freight claim agent, C&O, will report to Mr. Good on matters of policy and coordination planning.

ERIE LACKAWANNA.—Herbert E. Simpson, freight traffic manager, Chicago, transferred to New York. **Edwin W. Keiley,** freight traffic manager, New York, transferred to Chicago. **William P. Campion,** division sales manager, Buffalo, N.Y., promoted to assistant freight traffic manager, Chicago. **Owen P. McKeever,** district sales manager, New Haven, Conn., appointed division sales manager, Hoboken, N.J., succeeding **William E. Bennett,** transferred to Buffalo to replace Mr. Campion. **James A. McCall** succeeds Mr. McKeever at New Haven.

George I. Molusky, signal supervisor, Hornell, N.Y., appointed signal engineer, Cleveland, Ohio, and is succeeded by **James J. Mahoney,** assistant supervisor, Huntington, Ind. **Harry W. Klein** succeeds Mr. Mahoney.

Arch F. Gainey appointed regional sales manager—Piggyback Department, Chicago, succeeding **W. Seal Burwell,** named district sales manager—traffic, Pittsburgh, replacing **J. Lawrence Chapman.** Mr. Chapman appointed assistant freight traffic manager, New York.

George W. Moorhouse, industrial commissioner, Cleveland, appointed manager—industrial development, Hoboken, N. J. **Leo J. Slack** industrial commissioner, Hoboken, named assistant manager—industrial development there. **Paul H. Gum** appointed industrial agent, Cleveland.

GULF, MOBILE & OHIO.—Charles J. Kucera, assistant foreign freight traffic manager, Chicago, retired April 30 after more than 54 years of railroad service.

Charles W. Smith promoted to freight traffic agent, Memphis, Tenn.

HIGH POINT, THOMASVILLE & DENTON.— C. F. Zellers, Jr., elected secretary-treasurer, High Point, N.C., succeeding **O. Arthur Kirkman,** retired. **J. B. Lovelace,** general counsel, elected also assistant secretary and assistant treasurer.

ILLINOIS CENTRAL. — Frank E. Martin, vice president and comptroller, Chicago, retires May 31 after a railroad career extending over a half-century.

Narv Strickland appointed labor relations officer, Chicago.

INTERSTATE COMMERCE COMMISSION.—Robert D. Pfahler, assistant director, appointed director, Bureau of Safety & Service, succeeding the late **Charles W. Taylor.**

John A. Burnett
RI

William J. Cruse
RI

KANSAS, OKLAHOMA & GULF—MIDLAND VALLEY.—J. A. Schlereth appointed assistant freight traffic manager—rates, St. Louis, Mo.

LEHIGH VALLEY.—Richard M. Roth, assistant freight traffic manager, Detroit, Mich., appointed eastern freight traffic manager, New York, succeeding **John J. Kiernan. Robert D. Price** appointed district freight agent, Houston, Tex.

LOUISVILLE & NASHVILLE.—J. R. Parsons. Jr,, assistant superintendent, Louisville division, named assistant superintendent, Louisville Terminals, Strawberry (Louisville), Ky. **George A. Payne,** trainmaster, Louisville division, replaces Mr. Parsons, and in turn is

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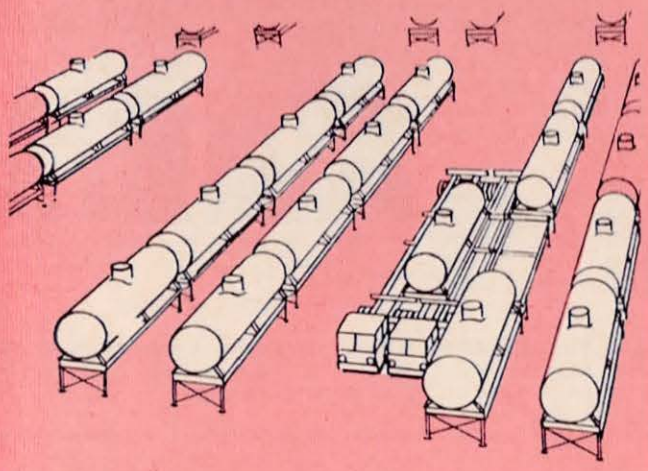
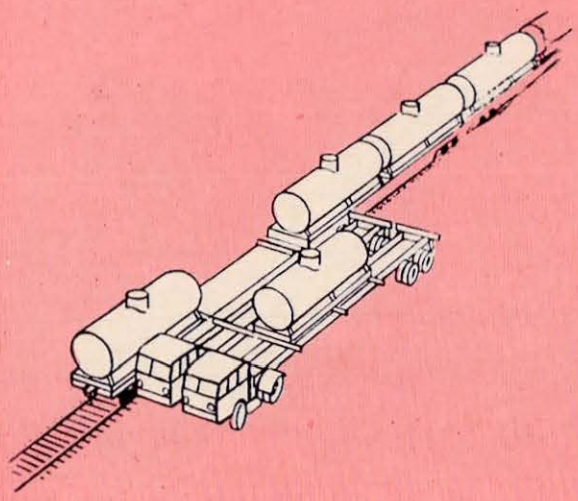
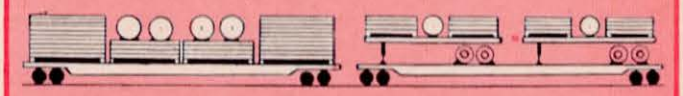


■ Mobile container storage terminals move to follow markets . . . replace expensive fixed terminals . . . reduce operating and trailer delivery costs. 20 ft. containers stored on metal racks eliminate dust and contamination problems . . . containers can be delivered to job site and left or be blower unloaded.



2 75% BIGGER PAYLOADS ON STEEL SHIPMENTS OVER PIGGYBACK



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140,000 lb. PAYLOAD	**80,000 lb. PAYLOAD**

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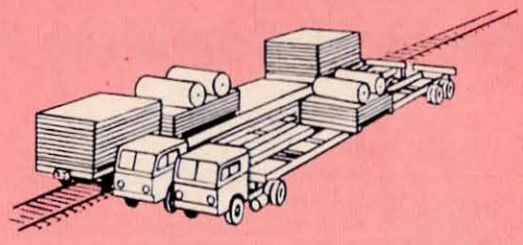

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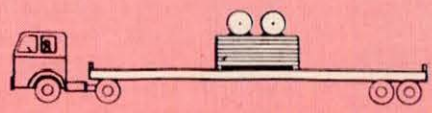

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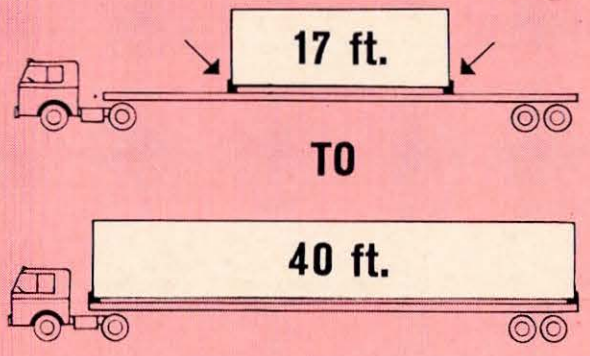

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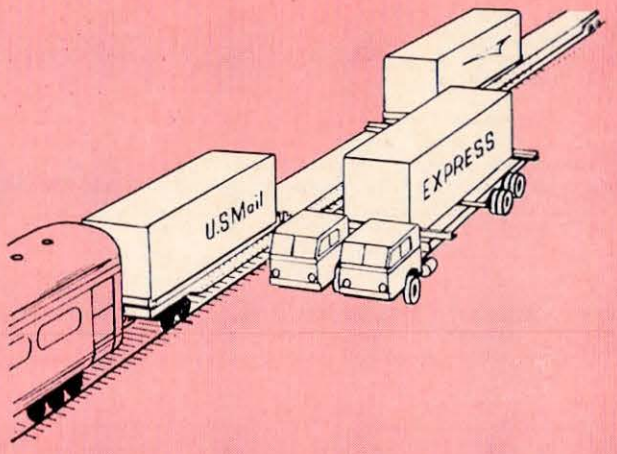

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replaced by **S. L. Spinelli,** assistant trainmaster-traveling engineer.

J. E. Nall, division freight agent, Chattanooga, Tenn., named traffic manager, Louisville, Mr. Nall's successor is **E. Howard Holt,** general agent, Anniston, Ala., who in turn is succeeded by **Roy F. Bell,** district freight agent, Tulsa, Okla. **John R. Newton, Jr.,** traveling freight agent, Milwaukee, Wis., replaces Mr. Bell.

MERIDIAN & BIGBEE.—W. M. Shoemaker, executive vice president, Meridian, Miss., elected executive vice president and general manager. **S. B. Grady,** Menasha, Wis., appointed assistant treasurer. **V. V. Myers,** Jackson, Miss., and **W. W. Weill,** Louisville, Ky., appointed freight traffic managers.

MILITARY TRAFFIC MANAGEMENT & TERMINAL SERVICE.—Col. Woodrow W. Atkins has been assigned as staff Judge Advocate of MTMS, Washington, D.C.

MILWAUKEE.—Hubert I. Lindblom, district passenger agent, Minneapolis, named passenger department general agent there, to succeed **John A. Guzy,** retired.

MISSOURI PACIFIC.—J. J. Finegan elected vice president-executive department, St. Louis.

H. C. Waggoner appointed air brake supervisor, St. Louis, replacing **Dan McIntyre,** retired. **A. J. Daniel** named shop superintendent; **E. McNabb,** master mechanic; **R. E. Larken,** assistant master mechanic, all with headquarters at North Little Rock, Ark.

MONON.—Richard A. O'Brien appointed district sales manager at the newly opened sales and marketing agency at 175 E. Prospect Avenue, Cleveland, Ohio.

Elton E. Meaders appointed assistant district sales manager, Chicago.

PIEDMONT & NORTHERN.—George A. McKee promoted to assistant chief engineer, Charlotte, N.C.

ROCK ISLAND.—Jervis Langdon, Jr., chairman of the board, elected chairman and president, and **R. Ellis Johnson,** president, elected vice chairman (RA, May 24, p. 7). **William J. Dixon** appointed assistant to chairman. Mr. Dixon was formerly general manager-industrial engineering, B&O-C&O.

In a reorganization of its operating department, RI has established a system general manager's position at Kansas City, Kans., and discontinued jurisdictional separation of the road into two operating districts. The Western division has been discontinued and its territory absorbed by the Des Moines and Missouri-Kansas divisions, thereby giving the road six operating divisions instead of the former seven. **John B. Buffalo,** general manager of the southern portion of the road at El Reno, Okla., appointed general manager-system, Kansas City, Kans. **William F. Thompson,** assistant general manager, El Reno, named senior assistant general manager-system, Kansas City, Mr. Thompson's successor is **Arthur E. Anderson,** assistant general manager, Des Moines, Iowa, who in turn is succeeded by **Bradford L. Schoech,** superintendent, Rock Island, Ill. **David E. Visney,** superintendent, Arkansas division, Little Rock, Ark., replaces Mr. Schoech. **Henry W. Metz,** assistant superintendent of transportation, appointed general superintendent of transportation, Chicago.

William J. Taylor, assistant general auditor, elected comptroller, to succeed **F. B. Needham,** retired. **Edward F. Wilkinson,** assistant secretary and assistant treasurer, elected secretary and treasurer, to replace **M. Z. Greenley,** retired. Mr. Wilkinson's successor is **Irving A. Olson,** cashier in the treasurer's office. **Edward J. Scahill,** assistant general auditor, and **Victor C. Bohne,** assistant to general auditor, named assistant comptrollers.

John A. Burnett appointed manager of purchases and materials. He was formerly director of purchases and stores for 12 of U.S. Steel Corp.'s subsidiary railroads.

William J. Cruse named engineer, maintenance of way, replacing **H. G. Dennis,** retired.

SANTA FE.—L. Cena has resumed duties as superintendent, Middle division, Newton, Kans., succeeding **J. R. Fitzgerald. F. L. Elterman** has resumed duties as assistant general manager, Western District, Topeka, Kans., replacing Mr. Cena.

SOO LINE.—Will establish a Department of Safety, Freight-Damage and Fire Prevention June 1. **George W. Guthrie,** presently director of industrial engineering in the Special Studies Group, will become superintendent of the new department. **Russell H. Kapitan,** assistant trainmaster and agent, Bismarck, N.D., named supervisor, loss and damage. Also in the department will be **T. Louis Hildebrand,** supervisor safety, and **Allen H. Young,** supervisor fire prevention. Mr. Young is currently fire marshall.

Ray H. Miller
RAMCO

Jack E. Rupp
GRS

SOUTHERN.—Donald H. MacLeod, general manager—transportation, Atlanta, appointed general manager, Eastern Lines, Charlotte, N.C.

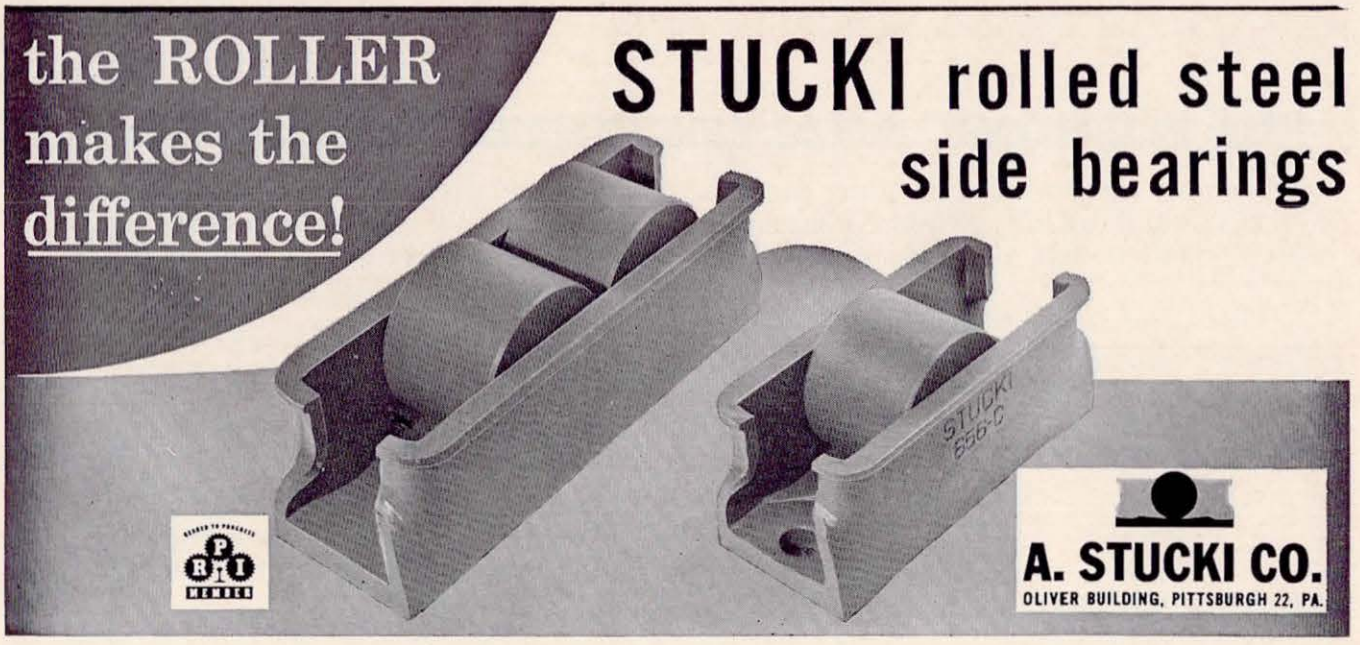
SOUTHERN—CENTRAL OF GEORGIA.—Reginald A. Matheson, general passenger traffic manager, Southern, named director, passenger sales and service for both roads, with headquarters remaining in Atlanta, Ga.

TORONTO, HAMILTON & BUFFALO.—F. Thomas Parker appointed assistant to traffic manager, Hamilton, Ont., succeeding **Lorne E. Harris,** who retired April 30. **Jesse Chapman** named district freight agent and **Jack W. Harrison,** supervisor of rates, at Hamilton.

Supply Trade

Ray H. Miller has been appointed chief engineer of **Railway Automated Machinery Co.,** subsidiary of Nationwide Leasing Co., Chicago. Mr. Miller will be in charge of the design, construction and operations of rail welding plants established by the company. Mr. Miller was previously associated with the **Bangor & Aroostook** and the **Lake Superior & Ishpeming.**

Jack E. Rupp has been appointed manager, urban transit markets, **General Railway Signal Co.,** Rochester, N.Y., reporting to **Thomp-**



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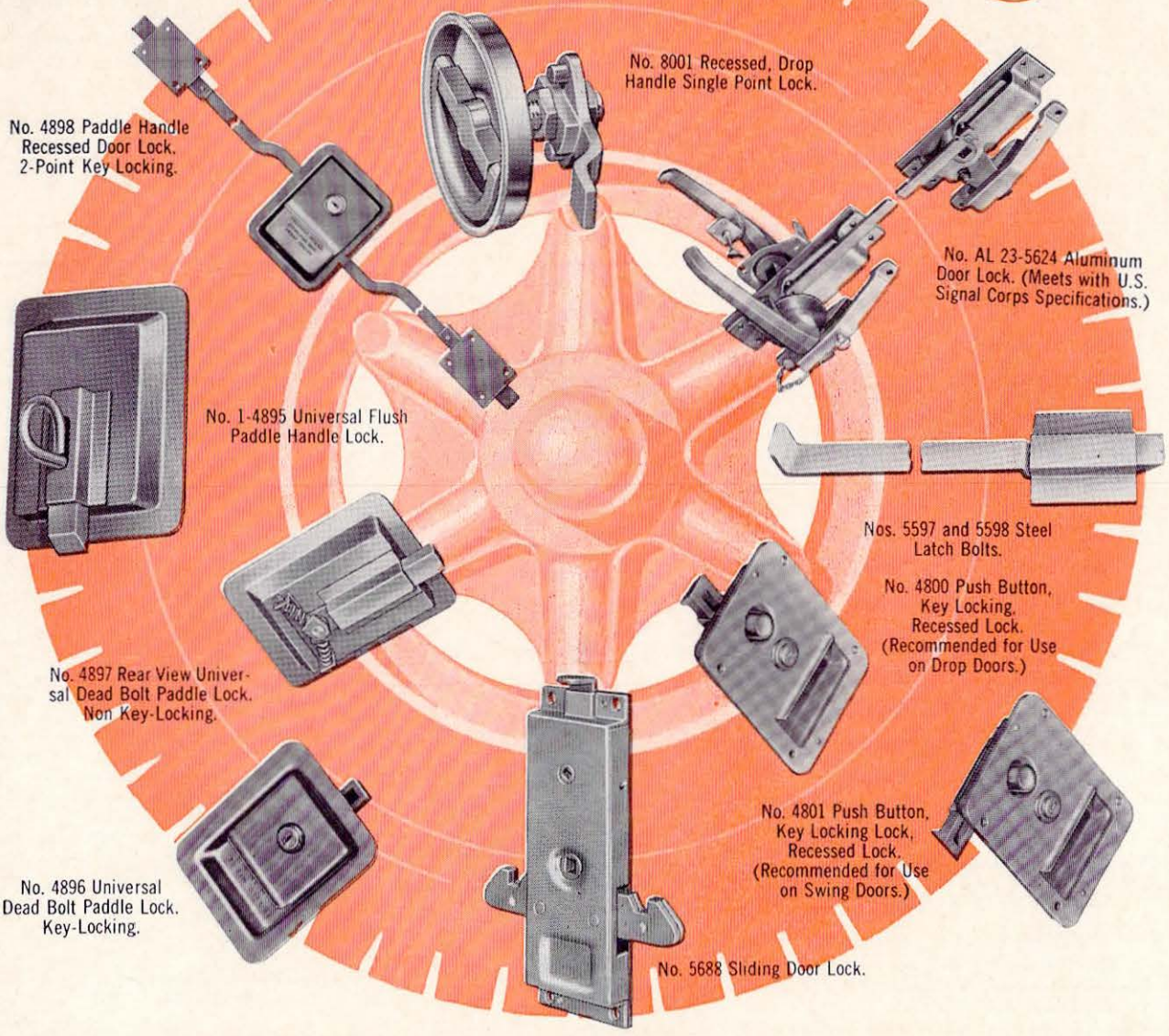
No. 4898 Paddle Handle Recessed Door Lock. 2-Point Key Locking.
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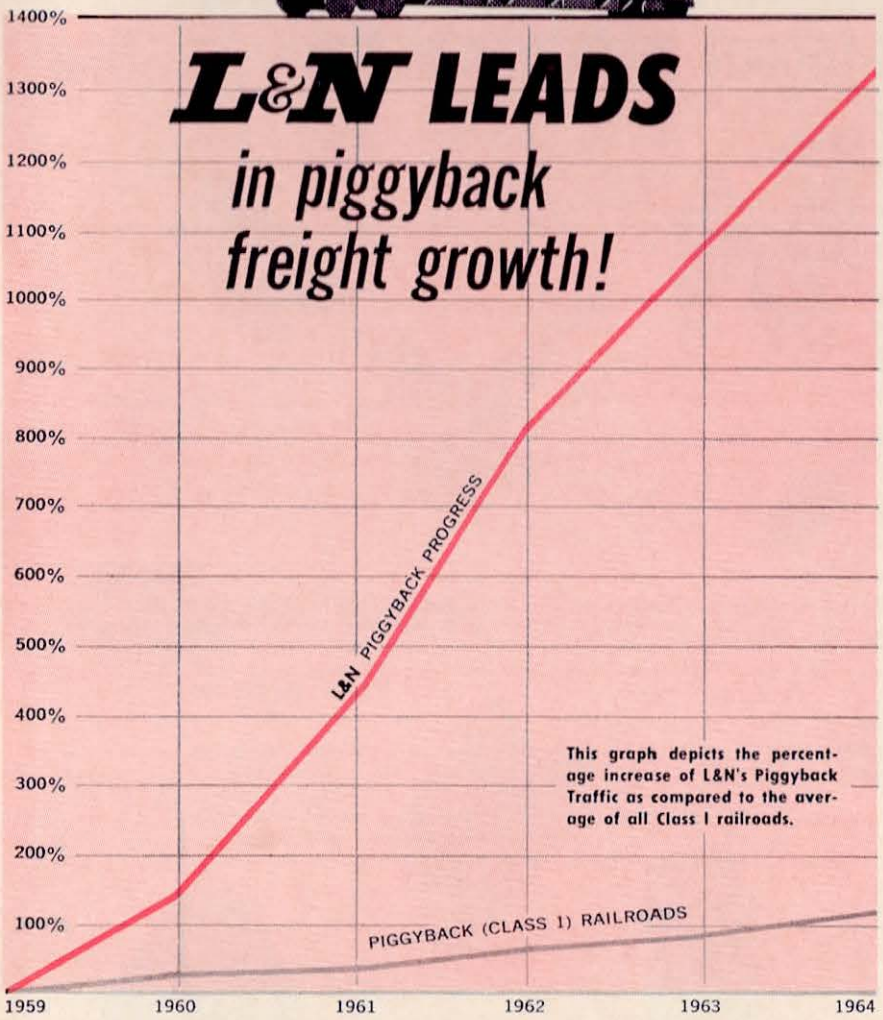

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son A. Nooner, director—marketing services. Mr. Rupp was formerly assistant to vice president—general manager and project manager, **Union Switch & Signal Co.**

Bruce O. Breon has been promoted to vice president—engineering, **Keystone Railway Equipment Co.,** Chicago. **James T. Smith** has been promoted to the newly created position of vice president—research and development. **Vaughn T. Hawthorne,** former production engineer at **General Electric Co.,** joined Keystone as director of engineering.

Gordon A. Sinclair has been appointed staff assistant—public relations, **Electro-Motive Division, General Motors,** La Grange, Ill. Mr. Sinclair was formerly public relations assistant, Delco-Remy Division, General Motors, Anderson, Indiana.

Francis B. Herlihy, director of metallurgical and chemical research, **American Brake Shoe Co.,** New York, has been elected a vice president.

Industrial Traffic

Veikko E. Taipale has been appointed supervisor—Rail Transportation, **Northwest Paper Co.,** Cloquet, Minn. Mr. Taipale was formerly traveling freight agent, **Northern Pacific,** Duluth. **Leslie F. Johnson, Jr.,** transportation assistant, named supervisor—Motor Carrier Transportation.

Charles F. Forgue, assistant general traffic manager, **Morton Salt Co.,** Chicago, has been promoted to general traffic manager, succeeding **A. B. Costello,** retiring May 31. Traffic managers appointed: **R. W. Brinckman,** Eastern territory; **R. J. Graffis,** Central and Southern territories; **R. W. Euting,** Western territory. **W. E. Brandt** will serve as traffic manager—marine. All are at Chicago, except Mr. Euting, who will be at Kansas City.

John F. Ryan, traffic manager, rate and audit division, general traffic department, **Goodyear Tire & Rubber Co.,** Akron, Ohio, has been named manager, general merchandise and material control, **Lee Tire & Rubber Co.,** new subsidiary of Goodyear, at Conshohocken, Pa. **B. B. Black** named traffic manager at Goodyear's Topeka, Kan., tire plant, succeeding the late **Ralph Westfall,** recently killed in an airplane accident. **C. C. Harless** succeeds Mr. Ryan. **George A. Pierce** replaces Mr. Harless as traffic manager, coordination and claims division, general traffic department.

Gene C. Uhl, Portland district traffic manager, **Georgia-Pacific Corp.,** has been promoted to assistant to the general traffic manager.

Thomas F. Meli, former commerce clerk, **New York Central,** has been named supervisor claims, **The Nestle Co.,** White Plains, N.Y.

William E. Neifert appointed traffic supervisor, Elevator Division, **Westinghouse Electric Corp.,** Jersey City and Dover, N.J. plants. **William B. Death** named traffic representative, Micarta Division, Hampton, S.C., succeeding Mr. Neifert. **Ross F. Paullet** named traffic supervisor, East Pittsburgh Division.

OBITUARY

W. C. Cole, general traffic manager, **Georgia-Pacific Corp.,** Portland, Ore., was drowned in a boating accident May 1 while fishing on Swift Creek Reservoir near Cougar, Wash.

(Product Reference 115A)

Maneuverable Ottawa Commando Yard Hustler shown jockeying trailers in Santa Fe Piggyback yards in Kansas City, Kansas.

OTTAWA COMMANDO YARD HUSTLER SPEEDS PIGGY-BACK OPERATIONS!

The Commando Yard Hustler is especially designed to expedite trailer handling for terminals, yards and piggy-back operations! It has a short wheelbase, and is a highly maneuverable, heavy-duty tractor with high output power train. It has the right range of speeds and power to handle jobs efficiently, economically; is ideal for stop-and-start shuttle service, or short haul operations. The Yard Hustler accommodates all trailers, reefers and all kingpin settings. 5th wheel lift system provides stability in all height positions; wheel's height can be adjusted instantly to raise trailer or match kingpin. Loaded trailers may be raised "on the go" or standing still. Steering, shifting and 5th wheel are hydraulically operated; controls are at operator's fingertips. Investigate the huge savings in time, manpower and maintenance that are possible by using the Commando Yard Hustler in your operation!

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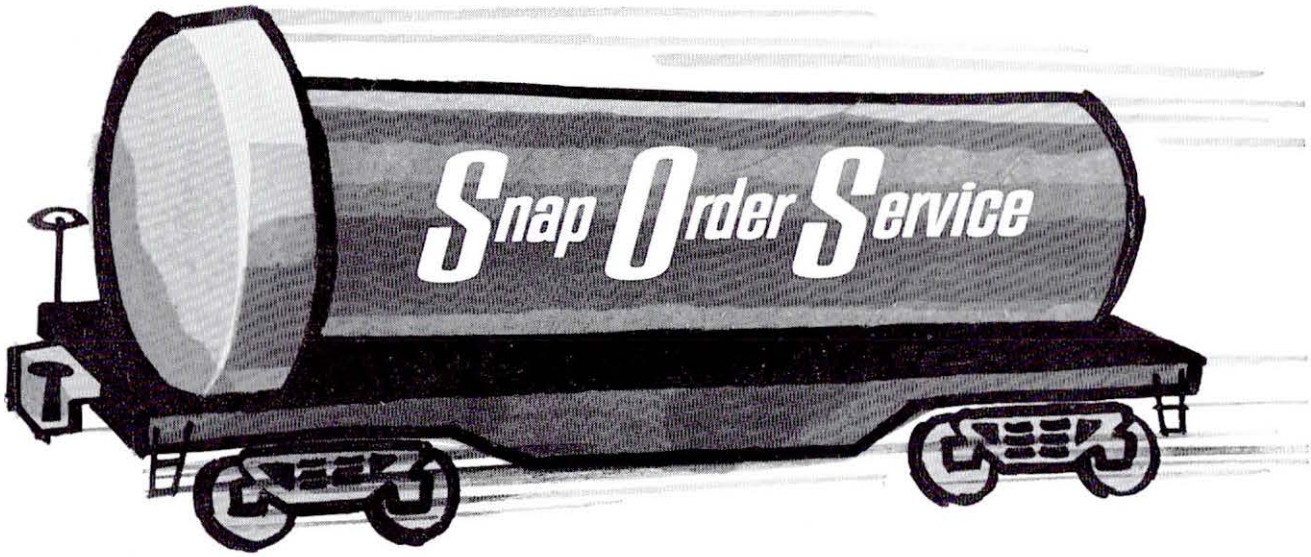

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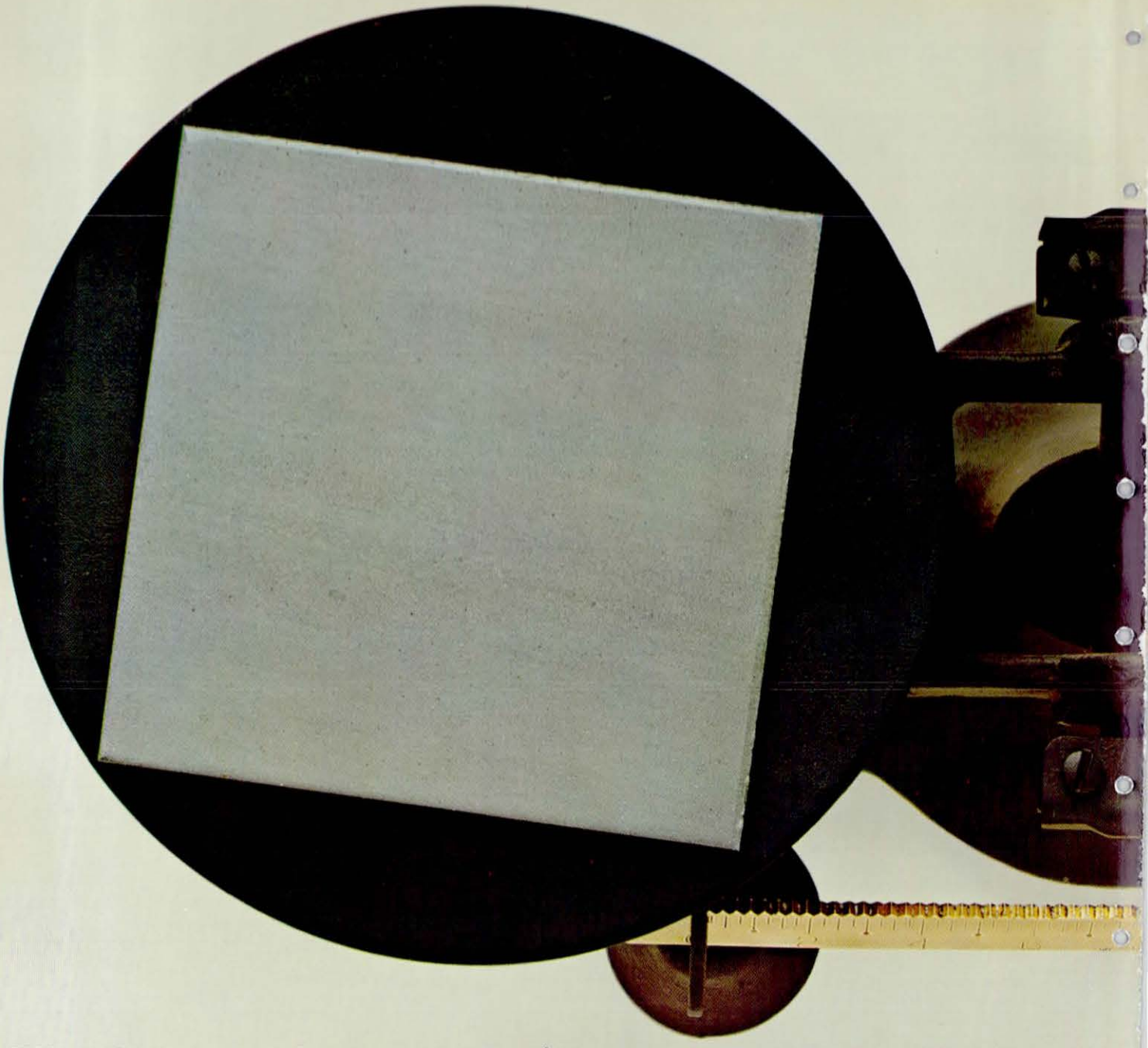

What this country has is a good 10¢ per lb. steel—USS COR-TEN brand

USS COR-TEN brand steel is the original high-strength low-alloy steel with superior resistance to atmospheric corrosion. Since its introduction in 1933, hundreds of thousands of railroad cars have been built stronger, lighter, and more durable with this steel . . . *and the price per pound is under 10 cents!*

Some railroads used USS COR-TEN Steel to cut car weight by 25% and boost payloads. Others wanted longer car life—and got it. Many of the USS COR-TEN Steel cars built in the Thirties are still in service.

USS COR-TEN Steel offers these advantages: ☐ Up to 50% greater strength than structural carbon steel (minimum yield point 50,000 psi) ☐ High strength-to-price ratio ☐ Price (average for structurals, plates, bars, sheets and strip)—about 9¢ a pound ☐ Modulus of elasticity (ratio of unit stress to unit strain) . . . 28 to 30 million psi ☐ Atmospheric corrosion resistance, 5 to 8 times that of carbon steel ☐ Paint life about double that of carbon steel ☐ Weldable ☐ High resistance to abrasion, denting, and rough usage. *What about the jumbo cars?* One major railroad has already used USS COR-TEN Steel along with USS "T-1" and "T-1" type A Steels, USS TRI-TEN Steel, and Stainless Steel to build fifty 100-ton capacity hopper cars.

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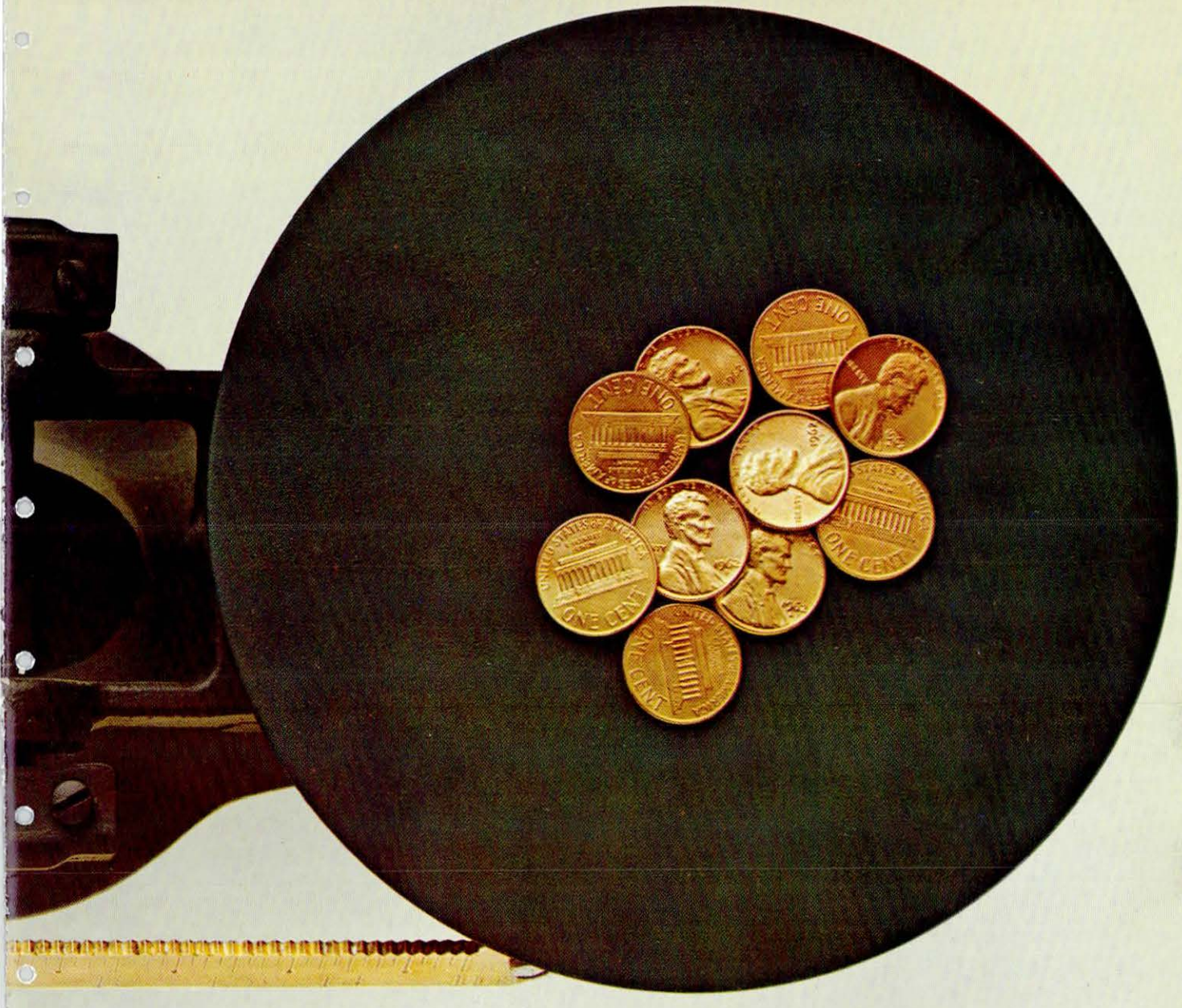

Additional cars are currently being built to bring this fleet to 170. This combination of steels gives you maximum strength and ruggedness, plus increased payload capacity without exceeding weight limits. Stainless steel in the slope plates has cut unloading time to 28 seconds with no need for special unloading equipment.

☐ United States Steel, through its research, is introducing about one new or improved product a week. The USS TENELON Stainless Steel 100-ton covered hopper car is a USS innovation. USS COR-TEN and USS TRI-TEN Brand High-Strength Low-Alloy Steels are used in the structural members for strength with low weight. The car weighs 16% less than a conventional covered hopper car.

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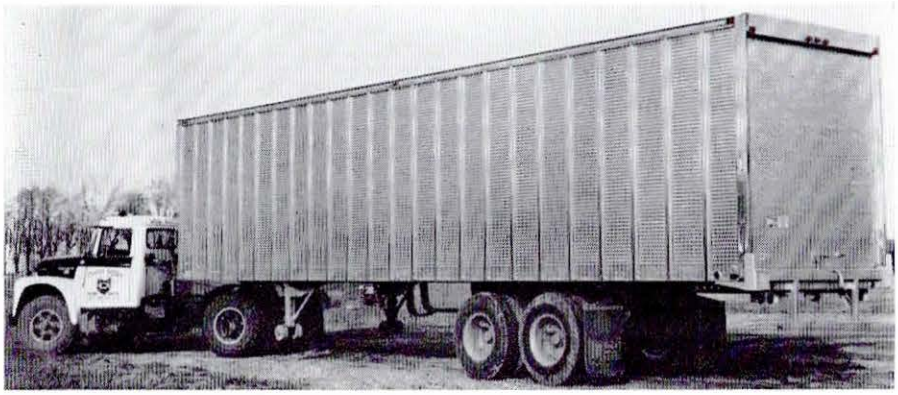
NEW PRODUCTS REPORT



New Trailer Truck (RA-1)

An all-stainless-steel trailer truck has been designed especially for piggyback rail shipments, fishyback containerized ocean freight and airborne vans.

Design innovations include thin-gage stainless steel side and nose panels and a specially developed semi-tubular stainless steel rivet which permits easy repairs. If trailer panels need replacing, the rivets holding them in place can be easily sheared and removed. The panel can then be replaced.

The side and nose panels have a special fluted design to give them added strength and rigidity. Side panels are 19 inches wide; the nose panels are 15 inches wide.

The new rivet "cinches" the trailer side and nose panels with the stainless steel top and bottom rails, vertical upright supports, and nose and panel supports.

The 40-ft trailer is said to cost about $1,000 more than a comparable aluminum van. However, the builder says, it offers as much as three times the life of the comparable unit and can carry much heavier loads. *Ohio Body Mfg.*

Cargo Container (RA-2)

The CoManCo container is designed for all types of flat cars. With the addition of applicable securing devices, container rails and cushioning units, standard CoManCo containers may be used with present-day equipment or designed for new equipment. The standard CoManCo units may be handled for loading and unloading by a variety of methods: overhead cranes, gantrys, straddle-lifts or fork trucks, depending on the type of handling equipment available. The container is made of aluminum, with steel underframe ends and king-pin plates. Standard kingpins are applied for use in locking the container to truck chassis or dock fifth wheel. Lightweight fifth wheel plates are installed on the truck chassis with a welded steel adapter assembly. The container is designed to handle all types of dry materials, such as mail, manufactured items, perishables and resins, or LCL. *CoManCo, Inc.*

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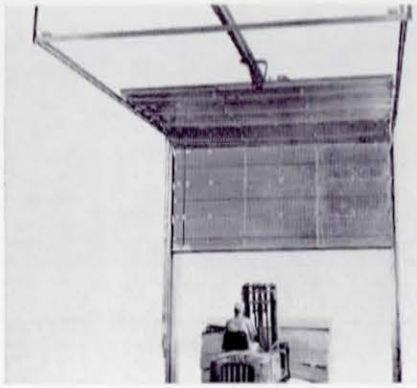
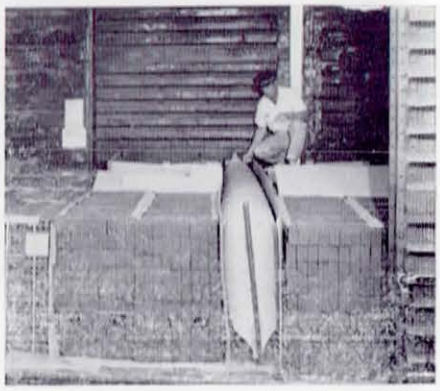


Freezer Door (RA-3)

The Mark II vertical, power-operated sliding door (16 x 16 ft) permits entry of refrigerator cars into refrigerated loading dock of a new cold-storage warehouse. Door has seven hinged sections of heavy-gauge galvanized steel, each with 4 in. of foamed-in-place polyurethane insulation having a K factor of 0.35 at 75 deg F. Frostop heating elements at gasket contact areas prevent ice formation. *Jamison Cold Storage Door Co.*

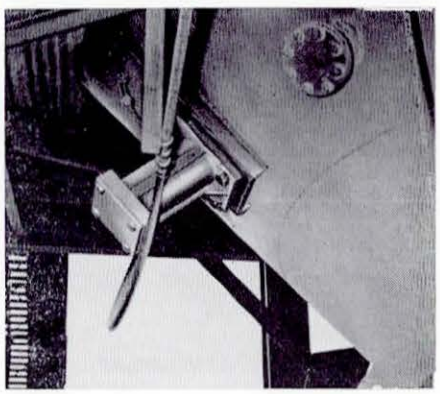


Inflatable Bag (RA-4)

The Acme Steel disposable inflatable dunnage bag is a "throw away," designed for one-trip use. It is composed of 6-ply, 100-lb-test kraft paper, lined with a bonded polyethylene envelope; a steel-reinforced self-sealing seam at the end of each bag to join the twelve thicknesses of paper, and an inflation valve with a safety seal cap for maximum air retention. Bags range in size from 36 x 60 in. to 48 x 108 in. *Interlake Steel Corp.*

Metal Coating (RA-5)

Turco Guard, for painted or unpainted aluminum, stainless-steel, fiber glass and plastic, is said to resist temperatures up to 300 deg F and to be practically invisible when applied. Coating is applied by spray, brush, wipe, dip or flow coat methods and cures at room temperature. It meets ARMA requirements for protective coatings as defined by Qualifying Procedure Specification 602.1 of Architectural Aluminum Manufacturers Assn. *Turco.*



Hopper-Car Lining (RA-6)

The Double Cover Polyclutch covered hopper car lining is a fast-drying, one-coat system, available both in white and blue. The two component products are blended shortly before use, reacting with each other to cure to a hard, adhesive film which is said to protect against abrasion, impact and successive cleanings. The coating is applied either with airless or conventional cold-spraying equipment. *Pittsburgh Plate Glass Co.*

Jolt Type Vibrator (RA-7)

The Navco BH 6-in. vibrator has a "designed low-frequency jolt type" piston action. It can, it is said, move and dislodge heavy, high-moisture ores and concentrates on heavily reinforced bins or silos. Its piston weighs 117 lb and has a 1½-in. stroke. The device operates at a low 40-60 psi and has a permanently lubricated vibrator housing. Its "one-piece" design eliminates bolts, separates striking plate and O rings. *National Air Vibrator Co.*

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Need cited for courses in transport

A top transportation executive has expressed concern over the declining role universities are playing in preparing young men for the transportation field.

"Our colleges and universities must be made more interested in the educational needs of the transport industry," REA Express President William B. Johnson told a meeting of traffic and transportation men in Boston. "And they must offer more of the courses necessary to master the new skills."

He said the rapidly expanding U.S. economy has created "an ever-present and accelerating need for more and better-educated, more broadly educated young transportation men in the executive ranks of general industry as well as in the transportation companies."

Johnson said that at a recent Railway Systems and Management Association seminar it was pointed out that the number of traffic and transportation courses in U.S. universities had declined sharply in recent years.

"One of the nation's largest universities will not offer a major in transportation this fall, after having such a program in its curriculum for nearly forty years," he said.

Of more than 2,000 accredited colleges and universities, only about 33 offer courses in transportation and traffic over the four-year curriculum, "and they're doing a fine job, but losing ground steadily," he commented.

● **What to do about it.** "Strenuous efforts must be made now—not by the few—but by publicly-supported municipal and state-grant universities and by our own industry to attract an adequate proportion of college graduates to seek rewarding careers in transportation and traffic," he urged.

"Frankly, the opportunity to acquire the basic skills through the school of hard knocks will diminish as the science of total distribution further evolves. Just as the advances in other technologies and sciences have required an overhaul and re-examination of their curricula, so too is there a need for overhaul and re-examination of the transportation curriculum."

Johnson said the basic obligation of our schools and colleges is to prepare the people with the basic skills with which to become technicians and later managers.

"The technical part of our business will still be learned substantially through the school of experience—just as most of you learned it," he told the audience. "The emphasis should not be for universities to graduate technicians in the field of transportation. The role of the university should be to give the individual the breadth necessary to make a good transportation manager. With the proper background and discipline the people who are graduated can become the technicians and later the managers we need."

● **The opportunities ahead.** Johnson said that by 1975, the U.S. transportation industry will be grossing revenues in excess of $100 billion, and there will be a great need for more and better technicians.

He urged men now in the traffic and transportation field to sell the industry and its educational needs to the universities and to young people.

"I cannot stress too strongly a need for a united pride of all the people in our industry, in what transportation accomplishes and in its role in the American economy, both in peace and in war." ■

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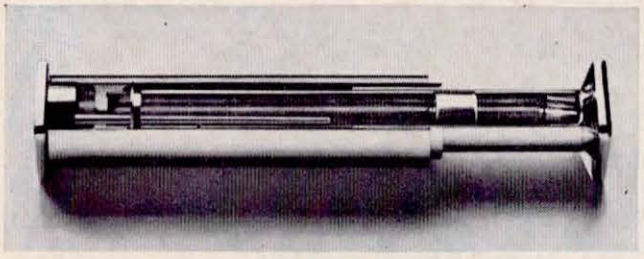

Since its introduction four years ago, hundreds of Freight-Saver units have been put into use by 23 railroads and freight-car owners.

You'll find ACF Freight-Saver units today on cars built by nine different car-builders. Here's why. Freight-Saver units cut down damage claims, save on maintenance. They provide consistent cushioning protection from 10,000 lbs. to full payloads.

Railroad users have found the ACF Freight-Saver hydraulic-pneumatic system is better engineered and more reliable than any other cushioning systems. Freight-Saver units as installed are competitive in price. They are also lighter in weight—by as much as 1900 lbs.—than other cushion underframe systems.

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acf **ACF INDUSTRIES**

MARKET OUTLOOK

Carloadings

Loadings of revenue freight in the week ended May 22 totaled 605,893 cars, the Association of American Railroads announced on May 27. This was an increase of 4,238 cars, or 0.7%, compared with the previous week; an increase of 19,009 cars, or 3.2%, compared with the corresponding week last year; and an increase of 7,474 cars, or 1.2%, compared with the equivalent 1963 week. Ton-miles generated by carloadings in the week ended May 22 are estimated at 13.9 billion, an increase of 6.2% over the corresponding week of 1964, and 9.5% above the 1963 week.

REVENUE FREIGHT CARLOADINGS
For the week ended Saturday, May 22

District	1965	1964	1963
Eastern, including Allegheny and Pocahontas	247,104	240,238	243,151
Southern	122,364	116,145	113,813
Total Eastern and Southern Districts	369,468	356,383	356,964
Northwestern	82,480	83,456	86,418
Central Western	115,606	110,908	115,080
Southwestern	38,339	36,137	39,957
Total Western Districts	236,425	230,501	241,455
Total All Roads	605,893	586,884	598,419
Commodities:			
Grain and Grain products	44,789	38,115	51,140
Livestock	1,720	2,266	2,600
Coal	115,813	112,766	113,850
Coke	8,667	8,174	8,507
Forest Products	10,106	39,493	37,477
Ore	52,473	57,864	50,768
Merchandise l.c.l.	9,681	12,940	17,601
Miscellaneous	332,644	315,266	316,476
May 22	605,893	586,884	598,419
May 15	601,655	583,105	601,062
May 8	598,734	573,108	598,876
May 1	600,672	560,003	591,210
Apr. 24	578,712	565,643	577,024
Cumulative total, 21 weeks	11,484,898	11,196,026	11,229,066
Estimated revenue ton-miles (billions) 21 weeks	270.3	258.6	243.1

PIGGYBACK CARLOADINGS.— U. S. piggyback loadings for the week ended May 15 totaled 20,303 cars, compared with 17,420 for the corresponding 1964 week. Loadings for 1965 up to May 15 totaled 376,845 cars, compared with 324,283 for the corresponding period of 1964.

IN CANADA. — Carloadings for the seven-day period ended May 7 totaled 76,966 cars, compared with 99,218 for the previous nine-day period, according to the Dominion Bureau of Statistics.

	Revenue Cars Loaded	Total Cars Rec'd from Connections
Totals for Canada		
May 7, 1965	76,966	26,797
May 7, 1964	78,635	24,531
Cumulative Totals		
May 7, 1965	1,256,245	442,370
May 7, 1964	1,280,301	458,664

FREIGHT-TRAIN CARS

► *Atlantic Coast Line.*—Ordered 200 high-capacity 70-ton cast steel pulpwood cars with interlocking end posts from General Steel. Deliveries will begin in the fourth quarter.

► *Louisville & Nashville.*—Ordered 52 85-ft box cars and 100 70-ton gondolas from Greenville Steel Car; 50 100-ton woodchip cars from Ortner; and 100 70-ton bulkhead flats from Thrall. Total cost of the orders is about $5.3 million.

► *Western Maryland.*—Ordered 50 100-ton hoppers from Bethlehem Steel at a cost of $670,000 for delivery in July.

► *Car Orders.*—Orders were placed in April for 4,821 cars, compared with 7,831 in March. Orders in April 1964 totaled 2,596. Deliveries in April totaled 6,164, compared with 6,144 in March and 6,529 in April 1964. Backlog of cars on order and undelivered as of May 1 totaled 35,138, compared with 36,491 on April 1, and 32,973 on May 1, 1964.

TYPE	Ordered April 1965	Delivered April 1965	On Order and Undelivered May 1, 1965
Box	1,960	1,410	10,375
Flat	738	679	3,325
Gondola	5	194	3,482
Hopper		1,406	6,059
Covered Hopper	240	1,191	3,264
Refrigerator	932	663	5,782
Stock			
Tank	738	475	2,158
Caboose		18	14
Other	208	128	679
TOTAL	4,821	6,164	35,138
Car Builders	3,122	4,038	19,502
Railroad Shops	1,699	2,126	15,636

PIGGYBACK

► *Trailer Train.*—Placed orders for 553 flat cars as follows: Bethlehem Steel, 241; Pullman-Standard, 212; ACF, 100. The new orders will bring the TTX fleet to 25,051 cars.

NEW FACILITIES

► *Great Northern.*—Will construct 4½ miles of track to serve a taconite pelletizing plant at Keewatin, Minn., and 2½ miles of track to serve a second taconite plant near Nashwauk, Minn. Total estimated cost of the two projects is $1,450,000.

► *New York Central.*—Ordered 55 sets of approach overlay shunt track circuit equipment and 8 sets of series overlay track circuit units from General Railway Signal Co. The equipment will be used to provide control of highway-railroad grade crossing protection and of switch locking in continuous welded rail areas. NYC has also ordered 4 Wheel Thermo-Scanner units from GRS for installation at Mungen and Peoria, Ohio; Erie, Pa.; and Chelsea, Mich.

FOREIGN

► *Pakistan Eastern Railway.*—Ordered 14 2,150-hp DL-543 locomotives from Alco at a cost of $3.1 million. They will be delivered in this year's last quarter and will inaugurate diesel service on the broad-gauge (66-inch) system that operates in the northwest sector of East Pakistan.

YOU OUGHT TO KNOW

Frisco proposes test passenger trains. In a move to win eventual ICC approval of its proposals to eliminate its six remaining passenger trains, Frisco said it would operate two sets of trains on a one-year trial basis. Expressing the hope that the trains would be patronized and that the Post Office would use the trains for mail, John E. McCullough, Frisco's general solicitor, said his road would work out St. Louis-Oklahoma City and Kansas City-Birmingham schedules for the trial trains provided its trains-off application is approved. Frisco claimed $7 million in losses on the ICC fully accounted basis and $3 million in losses on an out-of-pocket basis for its remaining passenger trains.

Automatic train operation debut: San Francisco's Bay Area Rapid Transit District made its first automatic train operation tests on May 12. On a short section of track, test car "C" made a run under complete automatic operation. This brief test of ATO was made using equipment furnished by General Railway Signal Co. Further tests will be conducted this year with two other test cars and with equipment of General Electric, Westinghouse Air Brake and Westinghouse Electric.

UIC to hold Montreal meeting: Research and cybernetics meetings of the Europe-based International Union of Railways (UIC) have been scheduled in Montreal in October 1967, with Canadian National as host organization. Meetings of UIC's technical research organization and the larger cybernetics conference will be held simultaneously during closing days of The Montreal World's Fair and just prior to the 1967 Railway Progress Exposition in Chicago.

Advertise for passengers: B&O-C&O began advertising its "Red Circle Fares" last week in the "personals" columns of Akron, Ohio, newspapers. The fares, which are good Mondays through Wednesdays, offer 31% savings in coaches and Pullmans. In one announcement, Bill Bailey is asked to please come home, "or else the whole family is coming to see you."

Colorado tour: Burlington's "Springtime in the Rockies" tour over the Memorial Day weekend looks like the largest off-season tour in the road's history. Two special trains were slated to carry 1,230 passengers from Chicago to Colorado Springs, where they were to board chartered buses for visits to such places as the Air Force Academy and the Royal Gorge.

Fast NYC Super-Vans: New York Central's Super-Van all-container train service from the Eastern Seaboard to St. Louis is now delivering the goods 24 hours faster than previously. The high-speed train offers 22-hour service to St. Louis connections for New York, New England and Canadian shippers. The train arrives in St. Louis at 2:30 a.m., permitting connecting railroads to provide next morning delivery to Dallas, Fort Worth and Houston.

Safety awards: The National Safety Council's first awards for railroad passenger safety have been made to 18 U.S. and Canadian roads. Five roads received the Award of Honor for outstanding records; eight received Awards of Merit, and five were given Certificates of Commendation.

More hazard on the highways: Movement of explosive, fire-hazardous cargoes over public highways "holds the potential of augmenting the already appalling accident rate to a most serious level," the National Fire Protection Association has been told. Adequate safeguards for such shipments, the Association heard, have not kept pace with the building of super-highways and the hauling of bigger loads. Suggested remedies include a uniform system of emergency-action placards; better methods of preventing and protecting against cargo fires and explosions; drive training in handling emergency situations, and improved technical information for guidance of fire, police and rescue services.

Truck tonnage: Intercity truck tonnage in the week ended May 15 was 3.1% below the volume of the previous week, and 6.6% above the volume in the corresponding week of 1964, according to American Trucking Associations.

Current statistics

Net income	
3 mos., 1965	$121,000,000
3 mos., 1964	133,000,000
Carloadings, revenue freight	
21 wks., 1965	11,484,898
21 wks., 1964	11,196,026
Freight cars on order	
May 1, 1965	35,138
May 1, 1964	32,973
Freight cars delivered	
4 mos., 1965	25,029
4 mos., 1964	23,829
Serviceable cars	
March 1, 1965	1,406,712
March 1, 1964	1,411,426

Report on freight car flooring tests at Lehigh University:

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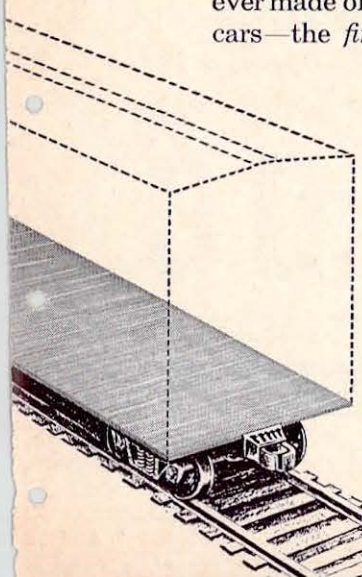

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ICC may change accounting rules

'Significant changes' under consideration by the Commission would reduce size and complexity of railroad paperwork job.

Planning and profits were what the industry's executive accountants had in mind at the AAR's Accounting Division meeting in Chicago last week.

While there was little prospect of the accountants being able to make molehills of the paperwork mountains in which they work, Chairman R. E. Kappauf, New York Central comptroller, and his division took some hard whacks at important "figuring" problems besetting railroads.

— The accountants are making an effort to head off inaccurate accounting in per-diem payments. They established an audit to protect the interests of all railroads by assuring that rates are in accordance with the multi-level per-diem agreement.

— They worked out guidelines for handling income received by railroads providing passenger and commuter service that is paid by states, cities and other government agencies.

Speakers at the division meeting delivered some assessments and asked some questions of the railroad accounting men.

● **Short and long planning.** Missouri Pacific President D. B. Jenks urged the accountants to act as constant interdepartmental catalysts in achieving successful planning directed at maximum profits. He told them they need to continually refine their ability to manage the subtle and demanding relationships between needs, demands and budgetary capabilities—that they must become expert in keeping their eye on "profit targets" inherent in all short- and long-range planning.

Matthew Paolo, director of the ICC's bureau of accounts, praised the accountants for implementing the complicated reporting requirements set by the ICC. He also gave them a tantalizing hint of the chance that the Commission might come up with some changes that will reduce the size and complexity of the railroad paperwork job.

"We currently have under consideration some changes in the accounting rules and procedures of major significance," he said. The ICC will:

— Give consideration to changing prescribed depreciation rates to the extent "consistent with demonstrated policy and performance."

— Amplify and clarify rules governing the accounting for construction of freight cars so as to minimize conflict in interpretation and to increase usefulness of the rules to the industry.

— Clarify the allocation of overhead expenses incurred at certain railroad repair shops.

— Look into the all-inclusive form of income account, to clarify the "many questions and problems that now arise in connection with the determination of items properly includable directly in retained income."

— Respond to the need for comprehensive review of railroad depreciation procedures and problems—particularly service-life studies and salvage values—via an ICC staff to deal with these problems on a continuing basis.

— Give better handling to requests for authority to use accounts requiring special permission, to depart from prescribed rules, to prescribe depreciation rates and to issue valuation reports as the result of a permanent accounting and valuation board.

The accountants also got some cheerful news from Thomas M. Healy, management member of the Railroad Retirement Board. He reported that, while benefit payments in the fiscal year ending in March were up $17 million, important administrative and management moves have substantially reduced the financial demands upon the fund.

● **Efficiency and strategy.** Healy noted that the RRB's administrative expenses were down nearly $760,000 because of automated procedures and other efficiencies installed at the RRB.

But the big savings Healy cited came as a result of the Joint Partnership Program participated in by railroads, labor and the RRB for the last nine years—aimed at finding jobs for unemployed railroad workers inside and outside the industry.

Securing jobs for 285,000 idled railroad workers resulted in the Railroad Unemployment Insurance Account saving $34 million by the end of 1964, he said. And, by careful investigation and watching of claims filed, the account was saved an additional $41 million that would have been paid out for unjust, fraudulent and other improper claims.

● **Elect new officers.** The Accounting Division elected R. M. Sutton, Union Pacific vice president and comptroller, as chairman; W. V. Lawrence, Seaboard Air Line vice president and comptroller as first vice chairman; and W. S. Cook, Pennsylvania comptroller, as second vice chairman. ■

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How big is the car fleet?

The business upswing and complex marketing, equipment and service changes are behind shortages. But a solution is in sight.

It is no secret that some kinds of equipment, especially ordinary box cars, are in short supply. Scattered car shortages are already being reported from Oklahoma northward as the gathering of the wheat begins. Shortages have been reported by practically all the regional shipper advisory boards.

As shippers see it, railroads simply don't have enough cars. Railroads, however, have a much more complicated view. Equipment design, shipper pressure, investment credits, per diem payments and utilization ratios are just a few of the problems confronting a railroad in an equipment-buying mood. Shippers, while acknowledging the fact that railroads have made impressive progress in acquiring special equipment, still say the car fleet is shrinking and that this can be solved only by buying even more equipment.

Of course, railroads tend to agree that more equipment needs to be bought. But the "shrinking car fleet" theory is about to get shredded by some impressive facts.

As of March 31 railroads had 1,409,020 freight cars—compared with 1,409,862 on the same date last year. But the March 31 cars, says the AAR, had an average capacity of 58.56 tons—1.28 tons higher than the average capacity in the fleet a year ago. Thus, over the past year, the car fleet was practically unchanged in absolute numbers—but gained more than 1.3 million tons in capacity.

Not all this additional capacity came from the 66,340 cars railroads added to their fleets in the 12 months ending March 31. A substantial portion came from the heavy repair and rebuilding programs in effect on railroads everywhere the past few years and continuing this year. The effect on the fleet of that additional capacity is almost the same as 26,000 additional 50-ton cars. Almost—but not quite. As one top railroad officer noted recently, it is small comfort to a shipper to know that the car he can't get is larger.

Business upswings always bring equipment problems. Pressures from customers for special equipment have been enormous. Railroads have responded by adding more and more equipment tailored to specific traffic. But they have also been adding much ordinary equipment.

In the year ending March 31, for instance, railroads added 18,699 box cars to the fleet—but also bought almost 10,000 covered hoppers. When one stops to think of how much of what is traveling in covered hoppers formerly traveled in box cars, it is easy to see the complexity of making a railroad equipment shopping list.

The fact is, the industry is making substantial progress on a whole group of problems relating to car shortages. More and more railroad customers are getting equipment tailored to their requirements. There is a sharp upswing in assigned cars. This prevalence of special equipment is causing chain reactions in shipper production techniques, dock facilities, warehouse practices and, ultimately, transportation needs.

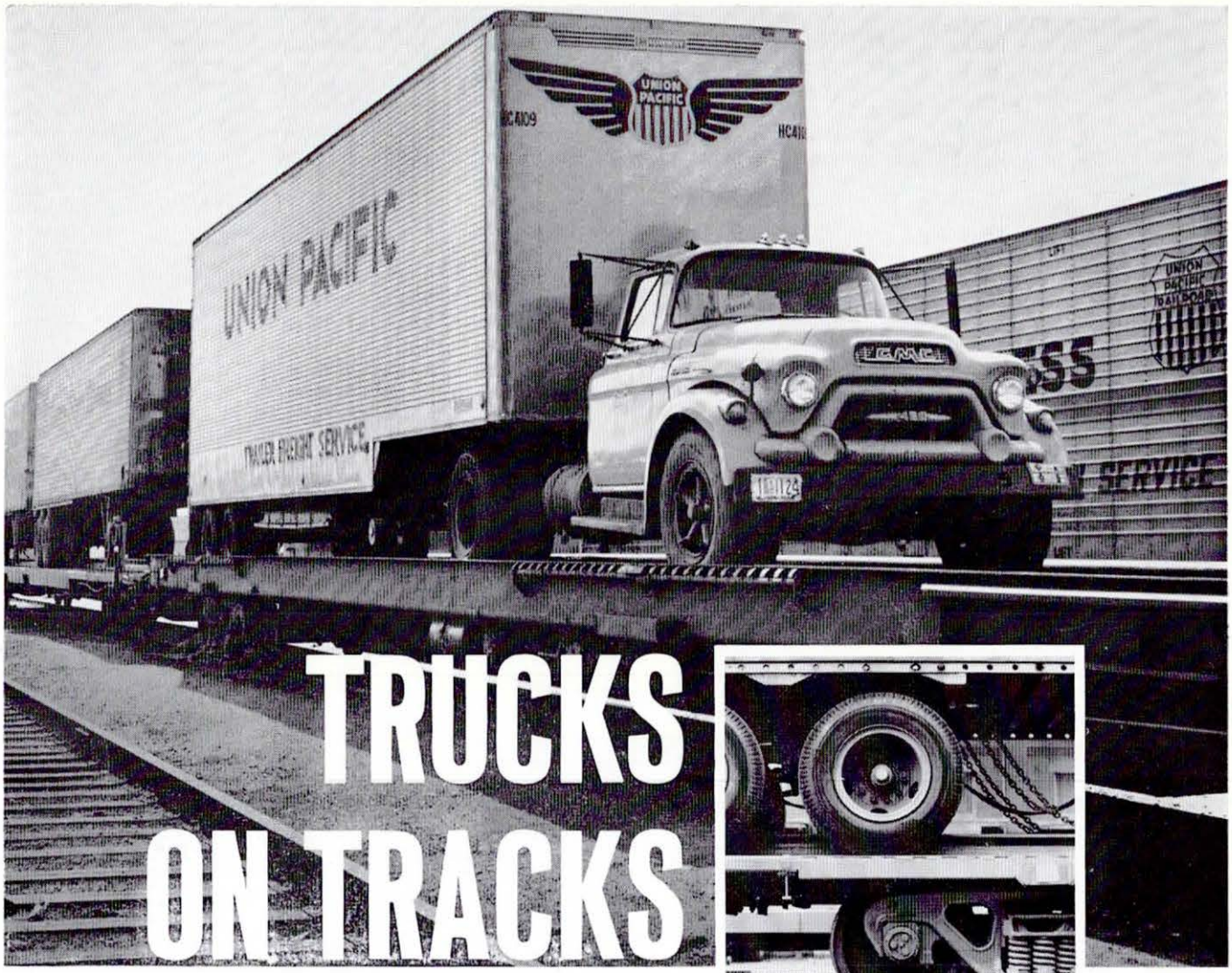
Imagine the situation that would exist if railroads had chosen to buy only ordinary equipment in recent years. There would probably be more than 700,000 box cars in the fleet. But there would be fewer ton-miles of transportation generated by those cars than by the 558,776 box cars and nearly 100,000 covered hoppers presently at work.

Shippers would not be getting the savings they now enjoy because of the present fleet's capacity for superior materials-handling techniques for loading and unloading. They would not likely have the incentive rates they presently do—and they would be watching morosely as industry capacity for replacing equipment diminished because of reduced earnings. The flow of bulk materials (ranging from cement and grain to melted chocolate and flour), instead of taking a smaller and smaller portion of box car space every year, would continue to take up the use of thousands of cars. And, even with 700,000 box cars in the fleet, the nation would likely have the worst car shortages in history.

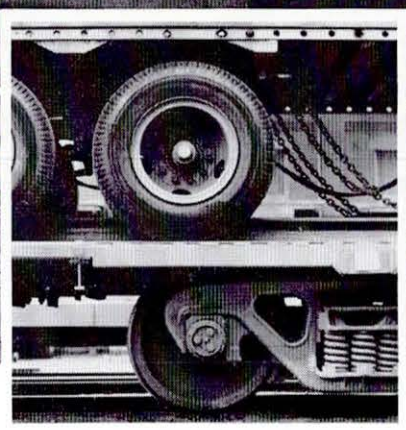
Solution may not be far off

No matter how irritating and frustrating car shortages are to railroad men and shippers alike, the railroads are, for the first time in years, close to finding the key to an adequate fleet. More and more traffic once handled by box cars is moving in covered hoppers, flat cars and in some of the new and highly specialized tank cars.

Special equipment, higher utilization and closer control of assigned cars, as well as massive repair and rebuilding programs, are perceptibly taking the pressure out of the conditions that lead to car shortages. Related technology in the form of car control systems on computers, faster trains and improved materials in the cars themselves are also making substantial contributions to the cause. Along with the increased ability to purchase and build new equipment that accompanies an upswing in business, there is a good chance railroads may soon overcome car shortages for all but the highest peak demands.



TRUCKS ON TRACKS



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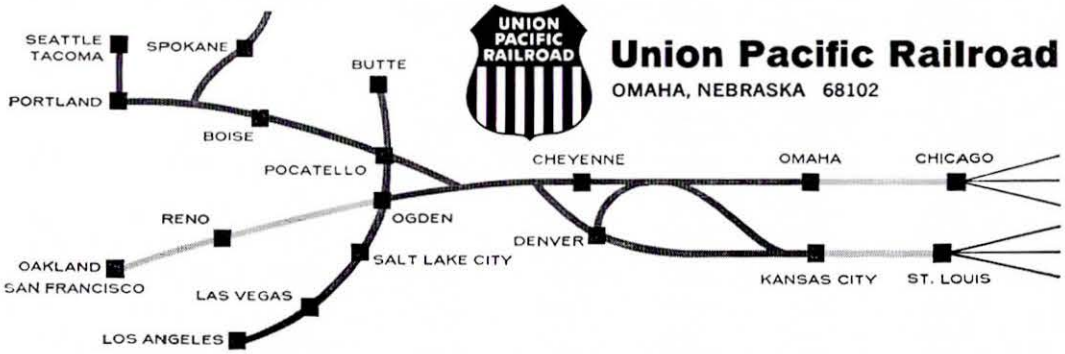

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